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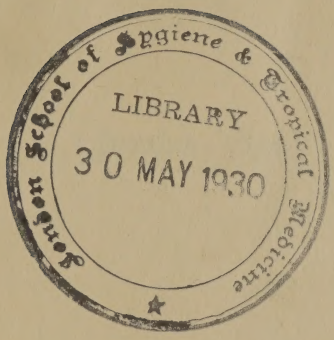
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CONTENTS.

Vol. XLIX.—Year 1886.

March, 1886.

PAGE

"Preventible Loss of Life at Sea." By Thomas Scrutton, Esq. 1— 17

Proceedings on 15th December, 1885, with reference to the late William Augustus Guy, Esq., M.B., F.R.C.P., F.R.S., a former President of the Society 17, 18

Discussion on Mr. Thomas Scrutton's Paper ..... 19— 27

"Further Notes on the Progress of the Working Classes in the Last Half Century." By Robert Giffen, Esq., LL.D..... 28— 91

Discussion on Mr. Robert Giffen's Paper ..... 92—100

"Suicides in England and Wales in Relation to Age, Sex, Season, and Occupation." By William Ogle, Esq., M.A., M.D., F.R.C.P., &c. ..... 101—126

Discussion on Dr. William Ogle's Paper ..... 127—135

Miscellanea:—

I.—Financial and Commercial History of 1885 ..... 136—144

II.—The Agricultural Returns for the Year 1885 ..... 144—163

III.—Mortality in the Medical Profession ..... 164—170

IV.—The Fires in London during the Year 1885, and the Metropolitan Fire Brigade..... 170—175

V.—German Literature of 1884 and 1885 176

VI.—English Literature in 1885..... 176—178

VII.—The Production of Precious Metals and the Monetary Circulation in various Countries. (A translation) .... 178—186

PAGE

VIII.—The National Wealth of France compared with other Countries. (A translation) ..... 186—200

IX.—Quarterly List of Additions to the Library ..... 201—216

PERIODICAL RETURNS:—

Registrar-General's Report, and Meteorological Table for England and Wales for the Year ending 1885.—The same for Scotland.—Births, Deaths, and Marriages of the United Kingdom.—Foreign and Colonial Produce Exported, 1884-80. —Trade of the United Kingdom, 1885-84-83.—Imports and Exports.—Shipping.—Gold and Silver Bullion and Specie. —Average Prices of Corn in England and Wales.—Bank of England Returns.—Revenue Returns.—The London Clearances and Country Bank (Note) Circulation in United Kingdom.—Foreign Exchanges ..... 217—240

June, 1886.

"The Progress of Joint Stock Companies with Limited and Unlimited Liability in the United Kingdom, during the Fifteen Years 1869-84." (In continuation of a Paper read before the Society in January, 1870.) By PROFESSOR LEONE LEVI, LL.D., F.S.A., &c. ..... 241—264

Discussion on Professor Leone Levi's Paper ..... 264—272

Foreign and Colonial Tariffs as influencing Prices and affecting Trade. By STEPHEN BOURNE, ESQ. ..... 273—305

Discussion on Mr. Bourne's Paper ..... 305—313

Occupations of the People of the United Kingdom, 1801-81. By CHARLES BOOTH, ESQ. ..... 314—435

Discussion on Mr. Booth's Paper ..... 436—444

MISCELLANEA:—

I.—Emigration and Immigration from and into the United Kingdom in the Year 1885 ..... 445—450

II.—The Migration from the Rural Districts and the Condition of the Agricultural Population in Germany. By M. LE VICOMTE RORRIC DE BEAUCAIRE. (A translation) ..... 450—468

PAGE

III.—Progressive Means. By Francis Ysidro Edgeworth, Esq., M.A. ..... 469—475

IV.—Census of Part of the North-West Territories of Canada, August, 1885 ..... 476—480

V.—Index to the Catalogue of the Library 480

VI.—Statistics of the Newspaper and Periodical Press ..... 480—482

VII.—Notes on some recent Additions to the Library ..... 482—494

VIII.—Quarterly List of Additions to the Library ..... 494—512

September, 1886.

Report of the Council to the Fifty-Second Anniversary Meeting of the Statistical Society, held on the 29th of June, 1886 .... 513—531

Proceedings of the Fifty-Second Anniversary Meeting ..... 532—538

Notes on the Progress of New Zealand for Twenty Years, 1864-84. By the Hon. Sir Robert Stout, K.C.M.G., Premier of the Colony ..... 539—570

Discussion on Sir Robert Stout's Paper ..... 571—580

Prices of Commodities and the Precious Metals. By Augustus Sauerbeck, Esq. ..... 581—648

Miscellanea:—

I.—The Mathematical Method of Statistics. By Francis Y. Edgeworth, Esq., M.A. ..... 649—654

II.—On a Calculating Instrument called a Universal Proportion Table. By Professor J. D. Everett 655, 656

III.—Lloyd's Statistics of Marine Casualties for the Year 1885 ..... 657—661

IV.—Statistical Review of the Present Position of Italy. By M. Toussaint Loua. (A translation) ..... 662—672

V.—Notes on Economical and Statistical Works ..... 672—678

VI.—Quarterly List of Additions to the Library ..... 678—692

December, 1886.

PAGE

On the Cost and the Conditions of Working Railway Traffic in Different Countries. By J. S. JEANS, ESQ. ..... 693—720

Discussion on Mr. Jeans's Paper ..... 721—735

"Economic Science and Statistics." The Address of the President of Section F of the British Association, at the Fifty-Sixth Meeting, held at Birmingham, in September, 1886. By JOHN BIDDULPH MARTIN, ESQ., M.A., F.S.S., F.Z.S..... 736—754

Working Men's Co-operative Organisations in Great Britain. By ARTHUR H. D. ACLAND, ESQ., M.P., Senior Bursar of Balliol College, Oxford..... 755—759

MISCELLANEA:—

I.—The present Population of the United Kingdom, 1st April, 1886. By G. B. LONGSTAFF, ESQ., M.A., M.B. 760—763

II.—The Increase of Shipping and Dock Accommodation in the Principal Maritime Ports. By M. E. FOURNIER DE FLAIX. (A translation) ..... 763—776

III.—Notes on Economical and Statistical Works .... 776—785

IV.—Quarterly List of Additions to the Library..... 786—804

INDEX to vol. xlix (1886)..... 805—823

APPENDIX. List of Members, Rules, &c..... 1—68

Vol. XLIX.] [Part I.

JOURNAL OF THE STATISTICAL SOCIETY,

MARCH, 1886.

"Preventible Loss *of* Life *at* Sea."

By Thomas Scrutton, Esq.

[Read before the Statistical Society, 15th December, 1885. The President, Sir Rawson W. Rawson, K.C.M.G., C.B., in the Chair.]

The subject of "Preventible Loss of Life at Sea" has been to a certain extent a public question during the last two or three years, or if not strictly a public question, yet certainly a question much before the public. It has been a subject of controversy between shipowners and the department of government charged with the protection of seamen; it has been before the legislature, and is now the subject of investigation by a royal commission. The various opportunities which have thus been afforded for discussion have served to do one thing, and that is to bring out in a most marked manner the divergence of views between the parties named, as to the way in which the statistics of the subject are to be dealt with. It is therefore with a measure of relief that I come before the members of the Statistical Society, to lay before them my own opinion on the points at issue. The questions raised are not only important in themselves, but they will before long be the subject of careful consideration, and possibly of legislation by the members of the parliament recently elected, and it seems to me of the first importance that a true reading of the figures in the case should be arrived at.

I will deal with: 1. The differences which exist as to the way in which the seamen of the merchant service should be counted. 2. The way in which the figures of the loss of life at sea are presented by various authorities in the discussion. 3. I will examine the figures thus presented, and present what I consider to be their true teaching; and 4. I will then offer some general considerations which seem warranted from the information previously given.

I. The first subject to be considered is as follows: Granted hat a certain number of men are employed in our merchant service, how is this number to be best ascertained?

For the purposes of practical application, I propose to exclude all crews connected with our colonial vessels, all fishermen, and all hands employed in unregistered vessels, that is vessels and boats under fifteen tons. I do this because the term "Preventible loss "of life at sea" is now a well known term in the controversy, having reference by common consent to our mercantile marine in connection with the United Kingdom, and to that only. Next, it has been said by Mr. Chamberlain: "with colonial vessels and fishing "vessels we have nothing to do," our subject is therefore advantageously narrowed to merchant seamen thus defined.

It is well known that the merchant vessels of the United Kingdom are all registered; their voyages are known; their tonnage is known; their crews are known. To such an extent are their voyages known, that a distinction is made between vessels that are "registered," and vessels that are "employed;" all employed vessels being "registered," but all registered vessels not being "employed." Having therefore an account of the vessels employed, and the crews of these vessels, as recorded on the articles of the vessels, or in the returns made under the six months' agreement adopted in some short trades, some authorities adopt the plan of taking the number of the crew engaged in a vessel in her first voyage, and attaching this number against her during the whole of her subsequent history. Taking in this way the vessels employed and the crews, you obtain what is held to be an accurate account of the number of seamen in existence. It looks fair and reasonable to say: "Here are a certain "number of vessels employed during a year, they have a total "of so many men to man them; if we suppose them all to be afloat "at one and the same time, surely the total of the vessels and the "total of their crews must represent the total of the merchant "seamen in existence;" and so we find that one party in the discussion gives the figures thus:—

1881.	Sailing vessels "employed"	92,253 men
	Steamers "employed"	94,466 ,,
	Total	186,719 ,,
	Or adding fishermen	22,762 ,,
	Including all hands on board*	209,481 ,,

I select the year 1881 because I have information with regard to that year which does not exist for other years. Now it is possible to compare the figures thus given with other figures

* Fishermen are here included to explain the figure 209,481, which was the basis of the earlier statements of the Board of Trade.

contained in the census returns for 1881; in these returns we have the following results:—

Census, 1881. *Night of the 3rd April*, 1881.

Merchant seamen actually in England	101,860
,, Scotland	15,056
,, Ireland	11,120
Registrar-general of seamen's return of men afloat in 6,206 vessels known to have been at sea when the census was taken	120,649
Men arriving at ports in the United Kingdom within one month of the census; supposed to represent seamen abroad when the census was taken, and not included in any of the above figures (see census, 1881)	9,938
	258,623

Here then I have a number of men not hypothetical or estimated, but individuals, who can in each instance be named.

12,930 of the seamen thus enumerated in the United Kingdom were foreigners; but as foreign seamen are largely employed in British vessels, the deduction to be made for foreign seamen employed in foreign vessels would not be large.

I have next to consider whether any additions of British merchant seamen may be made, on reasonable grounds, to the above numbers now. It is in evidence that in the 6,026 vessels enumerated, all vessels trading abroad and having left the United Kingdom for three years are not included, although if lost they will appear in the wreck abstracts. Further, no British merchant seamen in ports abroad wanting employment are included; and the importance of this omission is obvious, when we remember that it omits seamen seeking employment in Bombay, Calcutta, the Australian ports, New York, California, &c., &c.

Again, Lascars in English ships, such as the Peninsular and Oriental line, have to be added to the above number, and they represent at least 10,000 men. If this mode of computation is a fair one, I feel that it would not be an extreme or out of the way calculation to place the number of British seamen at 300,000 men. This question of the method of estimating the number of seamen employed is the first question which I wish to consider.

II. I wish next to put before you the way in which the loss of life (merchant seamen) is presented to the public. I am told the loss of life in 1881 was:—

By wreck	2,352
,, drowning other than by wreck	1,123
Killed by accident other than drowning	273
	3,748

In explanation of the above figures (2,352) I am told that they are divided as follows :—

By collisions	104
„ strandings	585
„ founderings	145
„ missing vessels	1,414
„ other causes	104
	2,352

While the causes of the "other losses" are thus described: fire, explosion, striking wrecks or ice, abandonment of timber ships, falling overboard through casualty, &c.

I read in the "Times" of the 13th November, 1885, that Mr. Goschen, speaking before the Institute of Bankers in Scotland on the subject:—"Is it true that figures will prove anything, or "the use and abuse of Statistics":—is reported to have said:— "He wondered what would be the first answer that the majority "of those present would give to the question. Figures would "prove anything if they were loosely handled and blindly accepted. "If they took their totals and rattled them about at their own "discretion, without analysing, without taking care to see of what "details they were composed, it was very likely that they could "suit their figures to prove almost any theory they might put "forward. There were many who offended in the direction of a "loose and reckless method of dealing with figures. Enthusiasts "often produced statistics that would not stand the test of "examination. Theorists offended in the same way. He wished "to address himself to the various rules that ought to be observed "in the employment and use of statistics, and to point out some of "the many pitfalls which surrounded the study of figures. One of "the first rules that ought to be laid down was that they must be "suspicious of totals. They must analyse their totals, and must "always endeavour to compare like with like. They must not "take figures that suited any preconceived idea as conclusive, till "they had made a searching examination of the figures that told "against them. Every sound and honest and impartial statistician "must examine the figures on both sides in equal anxiety to find "out the truth. This did not apply to politicians only, but to "every man who had got a theory. There was nothing that was "more misleading than gigantic totals, and if there was one "recommendation which he would wish to give to statisticians, it "would be to analyse and decompose totals; otherwise the most "splendid totals would mislead the public, would mislead the "students themselves, and would simply degrade the whole science "of statistics, which, if honestly pursued, was an incalculable "advantage to the human race."

These views I entirely agree with, and I take the figures given above and deal with them in the way suggested, with the following results:—

Taking first the loss of life (crew) by wreck, I find (and the correctness of the total, 2,352, I am ready to admit):—

1881.	Vessels totally lost, lives lost	2,240
	,, partially lost ,, ...	112
		2,352

I find this division:—

Lives lost in vessels totally lost by—	Sail.	Steam.	
Collisions	71	28	
Strandings	379	194	
Founderings	79	66	
Missing	1,066	348	
Other causes	9	—	
	1,604	636	Total 2,240

In order to throw light on the meaning of these figures, I take the following calculations as the nearest available:—

Vessels "employed" 1881—		
Sail	14,864	3,530,446 tons.
Steam	4,085	2,921,684 ,,

and further:—

1881. Entries and clearances on repeated voyages—		
Sail	340,876	32,486,115 tons.
Steam	263,775	82,448,250 ,,

Thus then I have a movement during twelve months of 32½ million sailing tonnage, with a loss of 1,604 lives; and 82½ million steam tonnage with a loss of 636 lives, or stated in another form the figures may be thus presented:—

Sail.

	Vessels.		Tonnage.		Crew.	
	Lost.	Safe.	Lost.	Safe.	Lost.	Safe.
1881	5·07	94·93	5·81	94·19	1·67	98·33

Steam.

1881	3·48	96·52	3·19	96·81	0·73	99·27

or confining the examination only to the vessels foundered or

missing in comparison with vessels employed, as given in the wreck abstract, we have :—

	Sail.	Vessels Employed.	Steam.	Steamers Employed.
Founderings— 1880-81.....	138	15,223. 1 in 110	19	3,789. 1 in 199
Missing— 1880-81.....	118	15,223. 1 in 120	8	3,789. 1 in 473

or taking the loss of life (2,352) and number of men (186,719), the death-rate will read thus :—

Loss of life by wreck in sail ..... 1,660, or 1 in 55 on 92,253 men
„ steam .... 692, „ 1 „ 136 „ 94,466 „
Or ..... 2,352, „ 1 „ 79·39 „ 186,719 „

I only present these figures as illustrating a system, and for our guidance in answering the second question :—when loss of life at sea is dealt with in controversy, should not sailing vessels and steamers be kept entirely distinct ? they are kept distinct in the returns ; and the returns show marked difference between them ; should not this plan be continued when any reference is made to them in public controversy, instead of their being grouped together, without any hint of the great difference between them ?

III. As a further step in examining the total figures :—

I find in 1881 :—

Sailing vessels missing appear as 112
Fishing „ 34
146

Of these, vessels built of wood figure as 132
„ iron „ 12
composite „ 2
146

or, if it is considered that these figures deal with too small an area, then I can state that out of 4,757 vessels totally lost belonging to the United Kingdom—

893 were iron.
36 „ composite.
3,828 „ wood.
4,757

I cannot give the number of wooden and iron vessels "employed" with any confidence in the accuracy of the figures.

As it is admitted that for merchant purposes no wooden or composite vessels are now built, my third question is, should not a distinct account be kept of the materials of which the vessels lost are built? and when we remember that steel is now rapidly superseding iron, and by reason of its ductility sustains a blow with much less risk of injury, should not all accounts of losses be arranged as follows: wood, composite, iron, steel?

IV. Further examining the figures, and keeping to the 112 sailing vessels above mentioned, I find:—

Classed vessels appear for	49
Unclassed „	63
	112

Coasters appear for	20	losing	78	lives,	2	classed,	9	lives,	18	unclassed,	69	lives.
Colliers, home trade, appear for	36	„	203	„	7	„	40	„	29	„	163	„
Vessels in ballast „	5	„	62	„	2	„	45	„	3	„	17	„
Timber vessels „	8	„	118	„	3	„	30	„	5	„	88	„
Grain „ „	6	„	117	„	6	„	117		—		—	
General trade „	28	„	371	„	23	„	322	„	5	„	49	„
Coal vessels, foreign „	9	„	117	„	6	„	88	„	3	„	29	„
	112	„	1,066	„	49	„	651	„	63	„	415	„

My fourth question therefore is, should not a careful analysis be made of the employments of the vessels that are lost, and taken into consideration when the subject of loss of life at sea is considered, with a view to its prevention.

V. Passing from the heading of loss of life by wreck, I now ask your attention to the line:—

1881.	By drowning other than by wreck	1,123
	Killed by accident other than drowning	273

These figures are not prepared by the same department as those for loss of life "by wreck," and it will not therefore be a matter of surprise to be informed that the same names appear in the returns of each department. I have the authority of the admissions of the Board of Trade for saying that the first number should be reduced to 697, and the second to 197, although I believe that in order to have an accurate return both numbers should be increased to a slight extent in order to include masters as well as seamen. If these numbers are examined it will be found that they are correctly represented as follows:—

Number of deaths, where the vessel was not lost, in 1881		1,123
Reduced by duplicate entries	109	
,, Channel Islands vessels	12	
,, colonial vessels	177	
,, fishing ,, ...	128	
	——	426
		697

Fell overboard, whilst in discharge of duty in most instances	168	
,, whilst securing anchor	13	
,, drawing water	10	
,, from aloft	8	
,, off stage	11	
,, whilst attending to sails	68	
Drowned, no particulars	183	
Washed overboard, gale or hurricane	88	
,, or knocked, or slipped	77	
Drowned whilst going on shore or coming on board	13	
,, attempting to go on shore	5	
,, by boat upsetting, or from a boat	22	
,, found	13	
Supposed drowned, missing	17	
,, fell overboard	9	
,, disappeared	1	
Drunk, drowned whilst	26	
Fell from quay to dock	13	
Drowned endeavouring to save his hat	1	
,, bathing	8	
,, attending to cargo	2	
Missing after collision	1	
,, knocked overboard	1	
Drowned, absent from vessel	2	
,, on shore, in a well	1	
,, supposed killed by a shark	1	
,, stage breaking	1	
,, mast carrying away	2	
,, no account	1	
	——	697

Total number of men lost by accident, other than drowning in 1881, per return		273
Reduced by colonial vessels	57	
,, duplicate entries	16	
,, fishing vessels	3	
	——	76
		197

Fell from aloft (whilst in discharge of duty)	81	
„ overboard when at work	2	
„ hold, or from bridge to deck	28	
	—	111
Killed by machinery in motion		7
Blow from gear or wheel		6
Crushed whilst at work		4
Fell from aloft in a fit		1
Ship gave a lurch		1
Found dead (2), frost bitten (1), sunstroke (2)		5
Missing (1), poisoned by accident (3), suffocated (1)		5
Shot by accident (2), burnt (7), struck by sea (8)		17
Injured (17), exposure (3), exhaustion (2)		22
Drinking (5), poisoned, drinking carbolic acid instead of brandy, &c. (2)		7
Fell from quay		2
„ aloft, rope giving way		1
Spar broke, adrift in storm		1
Fell through hatch at night		2
Struck by falling block, &c.		3
Buried by falling coal in bunkers		2
	—	197

The fifth question I have to examine is whether in any statement dealing with loss of life at sea, these accidents ought not to be dealt with under a distinct and separate heading from the losses included, and already described, under the heading "wreck."

Having thus endeavoured to explain the meaning of the figures usually brought under public notice, I have now to state how they are used for public information for comparison with other figures.

The statement is made thus: "1 in 60 of those engaged in "British shipping meets with a violent death in a single year."*

"The loss of life in a single year of the British mercantile "marine has been 1 in 56."†

This means 16·66 per 1,000 or 17·85 per 1,000, and the figures given in support of the contention are:—

1881.	Men employed, including masters		186,719
	Loss by wreck, violent deaths	2,352‡	
	By drowning other than wreck	734	
	Killed by accident other than wreck	194	
		3,278	or 1 in 56·96

This statement is used for comparison in the following way:—

On the 19th May, 1884, in the House of Commons, Mr. Chamberlain is reported to have said:—

* Mr. Chamberlain at Newcastle, on 17th January, 1884.

† Mr. Chamberlain at Hull, on 6th August, 1885.

‡ Note that I do not include deaths by disease in any of the figures; their number under this heading reach between 1,300 to 1,400 yearly.

"'I will ask the House to consider this [loss of life at sea] from "'another point. This seems a terrible loss of life, and it would "'seem still greater if you contrast the loss of life at sea with the "'loss of life in the most dangerous land pursuits. Take the case "'of railways. In 1873, the number of persons employed was "'274,000, of whom 773 were killed, or one in 354. The loss of "'life at sea is five times greater than the loss of life among the "'employed on railways in 1873, since which time accidents "'have been diminishing.' The number 274,000 appears to be "taken from 'Miscellaneous Statistics,' 1875, where (at p. 366) "the number of persons employed by railway companies in Eng- "land, Scotland, and Ireland, whose lines where open for traffic "on the 31st December, 1873, was given as—

Occupation.	United Kingdom, 31st December, 1872.
Secretaries, managers, accountants, timekeepers	616
Engineers and assistant engineers	327
Superintendents, inspectors, and station masters	6,875
Draughtsmen and clerks	25,438
Inspectors, foremen, and artificers	39,965
Engine drivers and firemen	19,303
Guards and breaksmen	10,129
Switchmen, gate-keepers, police, porters	78,114
Gangers, platelayers, and labourers	79,491
Miscellaneous*	19,277
	274,535

These remarks of Mr. Chamberlain have not been withdrawn, and they stand in a public declaration widely circulated in a pamphlet, entitled "Our Sailors." Yet of these heads the 25,000 draughtsmen, many of the 39,000 inspectors, &c., the 6,000 superintendents, the 1,000 secretaries and engineers, and many of the 19,000 miscellaneous, are in no way exposed to the special risk of railways.

My own feeling is that the comparison is utterly erroneous, but I prefer to place the facts before you, in answer to the question as *thus* stated. Under what conditions should comparisons be made between loss of life at sea, where a sailor is exposed to danger day and night, and occupations on shore, where the employment is only for a limited period, as in the case of a miner, or where only a limited number are exposed to the danger, as in the case of railways?

The last question I have to ask is this: What period should be

* "This includes 5,184 men employed by the London and North Western Railway Company in the manufacture of new rolling stock, and 1,000 men employed by the Great Western on new works."

accepted as giving a fair basis from which inferences as to the increase or decrease of loss of life at sea may be drawn?

My reason for making this inquiry is because Mr. (now Sir Thomas) Farrer, when before a committee of the House of Commons in 1880, adopted periods of five years, and showed a decrease; while Mr. Gray before the Royal Commission presented tables extending over nine years, and divided into periods of three years, thus showing an increase, though the figures would show a progressive increase in no other way. The "Wreck Abstracts, "1883-84," just issued, whilst recording figures for eight years, takes the average for the seven preceding years in many instances.

As illustrating this point I refer to the following analysis:—

The Parliamentary Paper (C–3875), which has been described by Mr. Chamberlain himself as "probably the most complete return "of any ever presented to Parliament," will show what can be done if grouping is attempted.

The total loss of seamen in twelve years was..... 35,660

Group it into two periods of six years and you have—

1871-76	18,495	
'77-82	17,165	
		35,660

Group into three periods of four years and you have—

1871-74	12,913	
'75-78	10,564	
'79-82	12,183	
		35,660

Group it into four periods of three years and you have—

1871-73	9,314	
'74-76	9,181	
'77-79	7,612	
'80-82	9,553	
		35,660

Group it into six periods of two years and you have—

1871-72	6,202	
'73-74	6,711	
'75-76	5,582	
'77-78	4,982	
'79-80	5,603	
'81-82	6,580	
		35,660

By which it will be seen that the only mode of grouping which

might give the slightest countenance to the statements that loss of life is increasing at sea is the three years' system.

In order to show how the figures vary, and therefore how important it is to group on some sound principle, I give the following table:—

Strandings, 1876-83 (*Seven Years' Loss of Life*).

	Sail.			Steam.			Grand Total.
	Coasting.	Oversea.	Total.	Coasting.	Oversea.	Total.	
1876–77	31	294	325	2	61	63	388
'77–78	41	167	208	4	273	277	485
'78–79	54	108	162	4	100	104	266
'79–80	20	70	90	12	55	67	157
'80–81	131	294	425	42	145	187	612
'81–82	68	150	218	21	328	349	567
'82–83	144	89	233	18	195	213	446
	489	1,172	1,661	103	1,157	1,260	2,921

Missing Vessels, 1876-83 (*Seven Years' Loss of Life.*)

	Sail.			Steam.			Grand Total.
	Coasting.	Oversea.	Total.	Coasting.	Oversea.	Total.	
1876–77	30	749	779	—	428	428	1,207
'77–78	97	331	428	35	166	201	629
'78–79	68	481	549	16	193	209	758
'79–80	22	612	634	8	249	257	891
'80–81	216	495	711	—	194	194	905
'81–82	199	885	1,084	42	530	572	1,656
'82–83	217	520	737	72	311	383	1,120
	849	4,073	4,922	173	2,071	2,244	7,166

As to this I only note that by "coasting" is to be understood a vessel coasting from one port to another, not in any way engaged in an oversea voyage. You will see how the numbers vary for different years, and when it is remembered that in one storm in 1881 90 vessels and 343 lives were lost on our coasts, it will be recognised how important it is to examine all the circumstances before drawing any conclusions.

This completes any examination I wish to make as to the figures presented for public consideration; it will be noticed that the points of difference as to the way in which they are to be read are numerous. I believe that they are also important. The very latest utterance on this subject speaks of the total figures "3,000 "or more;" no distinction is made between sail and steam, wood or

iron, small vessels or large, classed or unclassed. One total only is dealt with, and one remedy is suggested for the above losses. On this I suggest one caution, "*be suspicious of totals*," and in order that they may be analysed on sound principles, I suggest for consideration the following questions:—

Questions.

1. Whether the actual returns of the census are a safe ground by which to determine from time to time the number of seamen engaged in the British merchant service, or whether the system of estimates should be followed?

2. When loss of life at sea is dealt with, should not sailing vessels and steamers be kept entirely distinct?

3. Considering the rapid change which is taking place in the material of which vessels are built, should not a careful record be kept on this subject in reference to loss of life at sea?

4. Should not the employment of vessels be carefully tabulated in order to determine under what circumstances of trading the greatest loss of life takes place?

5. Should not all mere accidents or deaths from misconduct be excluded from the general figures dealing with the violent deaths at sea?

6. Under what conditions should comparisons be made between loss of life at sea, where a sailor is exposed to danger day and night, and occupations on shore, where the employment is only for a limited period, as in the case of a miner, or where only a limited number of persons are exposed to the danger, as in the case of railways?

7. What period of time should be considered sufficient from which to draw conclusions whether as a general proposition loss of life at sea is increasing or decreasing?

These questions I should answer in the following way:—

1. A system of enumeration which gives you the names, ages, places of birth, and occupations of over 270,000 men, would seem to be conclusive that this number at the very least must be accepted as correct in any comparisons or statements made as to the employments in which these persons are concerned, and when in addition it can be shown that in this enumeration a considerable number of persons are not included who without doubt exist, it is only right to ask that an allowance may be made for this unknown quantity. By this very direct plan I arrive at the opinion that no estimate of our merchant seamen can be considered reliable which does not place them at at least 300,000 men.

On the other hand, the calculation which only consents to

admit as the number of seamen in existence the men who would be employed if all tonnage in the country was afloat, and which would decline to add to this number the men who might happen to be on shore at any given time, appears to me to be inaccurate against the positive testimony on the other side.

2. I take exception to the system which, after having through a series of over forty tables in the wreck abstracts almost in every instance kept sail and steam apart, brings the two sets of figures into one total when presenting them to public notice, and in addition makes the result thus obtained a ground for common action against both classes of vessels. The two classes are kept distinct in nearly all our returns; they are dealt with as distinct in the rules dealing with navigation; they are essentially different in their mode of working; they have their distinct differences in equipment, manning, and rate of progress, and it is shown beyond doubt that in regard to safety of life the modern type has immensely the advantage. I ask then that the different classification which is carried out in so many instances should be continued in all cases in which questions relating to loss of life at sea come under public notice.

3. A further objection which I take to the presentation of the total figures is this, that the material of which vessels are now built is, and has been for the last twenty years, rapidly changing, and is now undergoing further change. If a true estimate is to be obtained as to the preventible loss of life at sea, one distinction to be kept in mind should be how far the different materials of which vessels are built contribute to the general loss. If it can be shown that the loss of life in wooden vessels is far heavier than in iron vessels, it is manifestly unjust to make regulations which affect both alike. If it can be shown that vessels constructed of the older material are rapidly giving way to those built of the modern material, it is again manifestly unjust to legislate for both on the same lines; but if it can still further be shown that a third material is finding favour with shipowners, which possesses advantages in case of accidents which the other materials have not, it is only reasonable to say, in making your arrangements for increased security, do not bring all these three classes into one common category, but use discrimination, and deal with each class as circumstances show to be necessary. I therefore ask that wood, iron, and steel be treated as distinct types of vessels, and that the tables of loss of life at sea may recognise these differences when the returns are made.

4. There being good reason for asserting that losses at sea are not spread equally over all trades (some passenger lines being almost free from casualty year after year), I hold that a classifica-

tion of losses according to employment would be not only of great value, but is absolutely essential to a proper understanding of the causes at work in producing losses; the tables in existence do not admit of accurate statements being prepared as to the proportion which losses of classed vessels bear to losses of unclassed; but it would be a very easy matter to prepare them with great exactness. An unclassed vessel is allowed to run in any voyage, and up to any age an owner sees fit, and it would seem to be not an unreasonable opinion that in the case of unclassed vessels in many instances there is a very near approach to the boundary line between safety and danger.

5. I object to the cases of pure accident or negligence of the person employed being mixed up with the graver losses, as if they all formed part of the same general issue. That the movements of over 18,000 vessels in all parts of the world, and at all seasons of the year, during twelve months, should only be attended with a loss of life from accident amounting to about 800 men, is to me a proof of great skill and care; but that this item of loss should be dealt with under the head of "preventible," and in some sense a reflection on the owners of these vessels, seems entirely to misread the figures. That owners of vessels should be commended for their care, and not blamed for the want of it, is to my mind the true lesson which should be gathered from these figures.

6. The comparison as to loss of life at sea and loss of life on shore in connection with certain trades, seems to me to be open to the very gravest objection. It should never be made in the form which has been adopted.

Here we have an employment engaged in all day and all night, not quietly on shore, but subject to gales, storms, or hurricanes at any moment, and under circumstances calling for constant vigilance at all times; and in relation to one feature of it, viz., loss of life, it is sought to compare it with employments which last not for twenty-four hours, but often only a third of that time, conducted always on the same spot and under the same conditions. I feel bound to resist such a comparison as almost an insult to one's common sense.

7. In making comparisons between one period or another, I hold that any system which groups together results spread over any period of years in connection with loss of life at sea, must be unsatisfactory, by reason of the intimate connection which is proved to exist between the state of the weather and the casualties to shipping. The risk of accident on a railway in working order between two places practically depends almost entirely on the amount of traffic; and you then have reliable data on which to construct a comparison. But at sea you have to deal with a state of

things upon which no reliance can be placed, even for a few hours together. My own opinion is that any comparison which extends beyond a year is valueless; and even then the comparison should only be made after a most careful examination of all the attendant circumstances; but to deal in 1880 with a series of losses over five years, in 1884 to alter the comparison to a term of three years, and in 1885 to further alter the grouping and make a comparison of seven years, as we find to have been done in dealing with this subject, is to shuffle the cards to an extent which throws discredit on each of all the groupings, and cannot be depended upon as sound in treatment.

I offer no apology for drawing attention to the differences which exist between the owners of shipping property and those whose duty it is to protect the general interests of the community by wisely considered regulations. It will be admitted at once that the British merchant service is far in advance of any other nation. It would I think not be difficult to show that in regard to capital invested it is in advance of any other British industry. I believe the more the question is examined, the more it will appear that the general management of this vast industry is deserving of very high commendation, and that the general laws of the country are quite equal to the duty of dealing with all cases of imprudence or neglect whenever they occur; but I do claim that this should be dealt with on some well defined and well considered principles, so far as the preventible loss of life at sea is considered; that shipowners should not be subject to the well meaning action of those who do not even profess to have a practical knowledge of the subject in hand, and that when the statistics connected with this special department are prepared, they shall be so arranged that their correctness shall at least meet with general approval.

I entertain the belief that a careful consideration of these points by the Statistical Society would be an exceedingly valuable contribution to the discussion which is evidently in the not distant future.

Whilst dealing with the figures, I have kept clear of any reference to the first important word in the heading of this paper, "preventible." I regard it as a word not happily chosen, because it can be, and is, used by different parties, if not in opposite senses, yet in senses which are not similar.

No sailor goes to sea intending to be lost, and in the sense of being avoidable under certain conditions, most, if not all, losses are "preventible." Every reasonable man is ready to admit that loss of life is to some extent preventible. But this word "preventible" is one of these "totals" which requires analysis.

To begin with, it would not be a wild assertion to say that all

collisions are preventible (the loss of life from this cause was 762 in seven years), but they are preventible, am I wrong in saying, by greater care on the part of those in charge?

Strandings are in many cases preventible (the loss of life from this cause in seven years was 2,921), but they are, again am I wrong in saying, preventible by greater care in navigation, greater watchfulness as to currents, greater caution in foggy weather? Of missing vessels (losing 7,166 lives in seven years), I say nothing, excepting to give prominence to a remark of Mr. (now Sir Thomas) Farrer before the committee of the House of Commons in 1880: "It will " be, I am quite certain, very misleading indeed to attribute these " losses (missing vessels) to preventible unseaworthiness or to " overloading."

As a shipowner, I can say without fear of contradiction there is loss of life at sea which, making every allowance for accidents and perils of the sea, is preventible; but I feel also that the proper way to proceed to prevent it is carefully to examine the record of losses and adapt the remedies to the ascertained evils; and in this endeavour, when it is earnestly undertaken, the general body of shipowners of this country will, I feel quite sure, give their hearty and sympathetic assistance.

Proceedings *on the* 15*th* December, 1885.

The President (Sir Rawson W. Rawson) said his first duty was a very grateful one, though accompanied with a mournful feeling. He had to invite the Society to join the Council in the record of their regret at the decease of their valued member Dr. Guy, who had so long been associated with them, and had done so much to support and advance the interests of the Society. It was perhaps an exceptional act on the part of the Council, but he believed it would be acceptable to the Fellows. It was not often that they found a member of the Society supporting it for nearly half a century, and then at his death bequeathing a sum, which, it was expected, would amount to 7,000*l.* or 8,000*l.*, for its support. They considered that it would not be in accordance with the wishes of the Society if the Council confined the expression of regret to its own members, and that the Fellows generally would wish to associate themselves with it. He therefore proposed in the name of the Council, and no doubt it would find a seconder in some member of the Society not associated with the Council, "That the Statistical Society desires to place on record its deep regret at the loss which it has sustained by the death of the

late William Augustus Guy, Esq., M.B., F.R.C.P., F.R.S., whose services to the Society extended over an uninterrupted period of forty-six years, viz., from 1839 to 1885. Dr. Guy was a member of the Council from 1841, during which period he fulfilled the duties of Honorary Secretary from 1843 to 1868 (a quarter of a century); Editor of the *Journal*, 1852 to 1856; Vice-President, 1869 to 1872; and President, 1873 to 1875. Dr. Guy was a constant and liberal donor to the library, and the numerous papers which he read before the Society, exceeding in number and variety of subjects those of any other member, as shown in the Jubilee volume, were of exceptional value. He further testified to his constant interest in the prosperity of the Society by the large number of Fellows whom he introduced (I may here name no less than 160), and finally by bequeathing to it a legacy of 250*l.*, and a reversionary interest of very considerable value."

Mr. James Heywood said he had much pleasure in seconding the resolution of regret at the loss of such a valuable friend as Dr. Guy, who had for so many years taken so great an interest in the Society, and in the questions of general and medical statistics. He had also left a record behind him which some day or other would be very useful to the Society.

The resolution was unanimously agreed to.

The President, before calling upon Mr. Thomas Scrutton to read his paper, pointed out that Mr. Scrutton, who was not a Fellow of the Society, and was not perhaps familiar with their proceedings, had put before them a series of questions or postulates upon which he asked their opinion. He would remind Mr. Scrutton and the Fellows that they were not there in the position of a collective body, which could express any opinion as a body upon papers presented to them, but simply as an assemblage of Fellows of the Society, ready to hear and to express their opinions as individual members upon whatever was presented to them. Consequently the opinions expressed would not be those of the Society, as Mr. Scrutton seemed to invite, but those of the individual members. Mr. Scrutton had rather sought to appeal unto Cæsar for his imperial opinion, but they were scarcely invested with the robes of imperial authority, and certainly not in that theatre. They might be in their own council room, but in that meeting each gentleman represented himself and his own opinions.

Mr. Scrutton said not being a member of the Society he was not acquainted with their rules. He was thoroughly in earnest on this question, and therefore had put it before them in a very plain way. He accepted the ruling of the President, and would be quite satisfied to have their individual opinions without the opinions of the Society.

[The Paper was then read.]

Discussion *on* Mr. Thomas Scrutton's Paper.

Mr. Frederick Hendriks said that a most excellent feature in Mr. Scrutton's paper was its raising of clear and definite ideas for the consideration of the meeting, in the form of specific questions, all of marked public importance and interest. Taking those questions in their order, it would be observed that Mr. Scrutton commenced by doubting whether the enumeration on the night of the census of 1881, namely 258,263 merchant seamen, ought not to be increased, on the grounds he has stated, to 300,000. In other words, Mr. Scrutton thinks the number of men included in the census enumeration should be increased by about 16 per cent. It may be very difficult to decide which total is right, or to arrive with any great accuracy at the number of men in real and active employment as seamen in the year 1881, and thus exposed throughout that year to the risk of accidental loss of life at sea. The object is, of course, not simply the ascertainment of a statistical fact, but to get at a basis for calculation of the accidental death-rate. Mr. Scrutton, apparently on the basis of some Board of Trade figures, seems however to admit that, as fishermen are excluded from the statement, and the crews of sailing vessels and steamers actually "employed" in the year 1881 are upon good grounds estimated to have been 186,719 men, they may have been fairly and reasonably considered as the total number exposed to risk of accident when we come to deal with the recorded number of 3,748 deaths from that cause, and in point of fact he adopts the total of 186,719 men in his calculations of the loss of life by wreck alone (that is in 2,352 cases out of the total of 3,748 deaths by accident). This would make the loss of life by wreck 1 in 55, or 1·82 per cent., in sailing vessels; 1 in 136, or 0·74 per cent., in steamers; and 1 in 79·39, or 1·26 per cent., in all combined. If Mr. Scrutton means to convey an impression that 186,719 men is an under statement of the numbers exposed to risk of accident in 1881, it may on the other hand be worth considering whether the death-rate from accidents is not also an understatement? How many a seaman, for example, may be injured by accident, leave his ship, and die from the effects of the injury in hospital, or elsewhere on shore, perhaps abroad or in the colonies, without any record of his death ever appearing on the ship's log when once he has left the service. If therefore there be an understatement of a certain number per cent. in the figures of the men, it is quite as likely that a balance of error occurs in the figures of the deaths, and Mr. Scrutton may rest quite certain that there are no materials for anything but a broad approximation to the truth. His second question, namely, whether sailing vessels and steamers ought not to be kept separate in the returns relating to loss of life at sea, manifestly should be answered in the affirmative, as Mr. Scrutton has shown with great clearness how different is the liability of their respective crews to death from accident. The same reply

would hold good as regards his third question, in which he submits that all accounts of losses should be arranged according as they occur in wood, composite, iron, or steel vessels. Indeed we might go further, and suggest that a sub-classification should also be made according to the age of the vessels, particularly when such things are heard of as ships that have been patched up and put to sea as centenarian vessels. The same agreement with Mr. Scrutton's views, when, in the fourth question, he shows such good grounds for classifying the accidents according to the employments of the vessels in seven or eight great groups of special service, may be reasonably expected from this meeting. There are grounds for greater difference of opinion upon his conclusions when we come to question five, whether, in any statement dealing with loss of life at sea, accidents, of which Mr. Scrutton gives a long list, ought not to be dealt with separately from losses by wreck. The answer all depends upon whether we want to arrive at the ratio of accidental death from all dangers that are incident to a seaman's calling, or only the ratio of death from wreck. Now what the late President of the Board of Trade wanted to show to Parliament was the "loss of life of seamen at sea" from all accidental causes incident to their calling, and, with the exception of the seven deaths mentioned in Mr. Scrutton's list of causes as having occurred from intoxication and poisoning, all of them seemed to him (Mr. Hendriks) to be distinctly attributable to the risks of accident attendant on a seaman's life. Mr. Scrutton took exception to Mr. Chamberlain's figures respecting deaths from railway accidents amongst railway *employés*, and had rather laid stress upon the circumstance that among the 274,535 exposed to risk from railways, secretaries, managers, clerks, and draughtsmen had been included in the number, out of which 773 had been killed in 1873. But the figures quoted by Mr. Scrutton ought to convince that gentleman that more than 90 per cent. of the several classes of occupation in the railway service were of men directly and constantly exposed to risk from railway trains; so that Mr. Chamberlain's figures were not subject to any large correction in taking a broad general view of the risk of fatal accident in the mercantile marine and railway service respectively. Passing on to Mr. Scrutton's sixth question. He submits that it is utterly erroneous to compare the loss of life at sea, where the sailor is exposed to danger day and night, with that in occupations on shore, such as of miners and railway servants, who are only employed for part of the twenty-four hours. But the data quoted by Mr. Scrutton himself are against this inference. The census enumeration for 1881 showed that quite one-half of the British seamen were on shore or in docks and harbours on the night of the 3rd April. The same, or nearly the same, would occur on any night of the year. Then a seaman's long holidays ashore were to be taken into account. All this he (Mr. Hendriks) submitted reduced the length of the seaman's risk of accidental death from service on his ship, and in his calling, to about the same on the average throughout the year as the same risk incurred by the miner or railway servant, either of whom is at daily work throughout the whole year. Mr. Scrutton's seventh

and last question was as to the period that should be accepted as giving a fair basis from which inferences as to the increase or decrease of loss of life at sea may be drawn. Mr. Scrutton appeared to imply that no faith should be accorded to the results obtained by grouping of years together. He would take each on its individual merits. But it might be questioned whether, so far as wrecks and collisions, arising as they do in a great measure from meteorological conditions, and which from their very nature recur in cycles of time, averages for longer periods, perhaps of seven years, including the last year, compared with the results for that year, might not, when compared for a considerable term of years, give very useful results, and be fairly trustworthy as an index of the amount of improvement, or the reverse, in safety to life at sea amongst seamen. He would conclude by saying that he cordially agreed with Mr. Scrutton in regarding the phrase "preventible loss of life at sea" as not well chosen, and as used by different persons in opposite or dissimilar senses. There could be no doubt that sanitary reformers and others have greatly perverted the use of the analogous expression "preventible mortality." The mischief began with Plato. That philosopher laid it down that death, even when produced by disease, is violent or accidental, and preventible, whenever it occurred prior to the period of life prescribed by nature, that is, from old age. A great many modern sanitary reformers had taken up the same view, and had much exaggerated what are the possible limits of preventible mortality. Mr. Scrutton seems very properly to consider it a wild assertion to say that all collisions at sea, and the loss of life therefrom, are preventible, but goes on to observe "but they are preventible, am I wrong in saying, by greater care on the part of those in charge?" But surely even greater care, such as Mr. Scrutton very properly advises, will not make fatal accidents preventible in a large number of risks. Fogs and tempests at sea cannot be prevented, channels are narrow and dangerous to navigation where trading vessels must crowd together in these days of intense competition, when the speedy landing of cargoes and of mails is of the first importance. From these and other non-preventible causes there arises a constant liability of vessels to collide with each other, a liability increased perhaps by some mysterious or little understood force of attraction that leads to fatal accidents of this kind in certain conditions of the wind and weather at sea.

Mr. F. G. P. Neison after expressing his thanks to Mr. Scrutton for the great trouble he had taken to bring this subject before the Society, said they were all of one opinion upon this point, that they should not pin their faith upon total results without careful examination of the details; at the same time he would remind Mr. Scrutton that in all matters of public legislation it was necessary to take a broad statesmanlike view, and that it was impossible on any question to legislate too much in detail. He quite admitted that Mr. Scrutton had shown that there was a greater loss in respect to sailing vessels than to steam, but what did that mean in the long run? It merely meant that if

Mr. Chamberlain or any other gentleman said that the loss of life from accident among the mercantile marine was for example 20 per 1,000, they ought to alter his figure, and to say that in respect to sailing vessels the figures ought to be 30 and to steam 10 per 1,000. They had had the analogous case of a death-rate, they were told that in London the death-rate was 22 per 1,000, but those living in the west end might object and say their death-rates were only 15 or 16 per 1,000, whereas in the east end they were 30 instead of 22. In all legislative efforts they must take a broad general view; but if it was necessary to go into greater details, this Society would certainly not object to do so. Great stress was laid by some persons on the difference between steam and sailing vessels, and it was very frequently argued that in viewing the rate of accident account ought to be taken of the number of miles travelled, as the liability was not determined by the duration of time to which sailors were exposed to risk, but rather by the number of miles over which the vessels travelled. He thought that if anything the risks were much greater in the slower vessels. What they had to consider was the period of risk and it was immaterial whether a sailor was at risk one month in going to the United States, or whether he went there and back in the same time. With respect to the death-rate amongst railway *employés*, he was requested some years since, in connection with the "Employers' Liability Bill," to draw up a very elaborate report disclosing the rate of accidents in connection with railway and mining operations, and for that purpose facilities were offered him which perhaps no gentleman had either before or since possessed. So far as railways were concerned, he found the rate of fatal accidents amongst those subject to the accidental rate, managers, accountants, &c., being omitted, was about 3·3. Working that out it made one death in slightly over 300 instead of 354, the figure stated to have been quoted by Mr. Chamberlain. Mr. Scrutton attempted to make capital out of the distribution of the total loss of seamen in twelve years, from 1871 to 1882, separating them into different years to show how many accidents occurred in one grouping and how many in another. He had however only given one half of the question. They wanted not only the number of lives lost in those years, but also the number of lives liable to be lost. Those numbers varied, Mr. Neison believed, in different years as much as 10 or 15 per cent., and therefore to make the comparison accurate they must know also the number of seamen afloat in those respective years. There was a good deal of force in the argument that it was unfair to compare the rate of deaths among seamen with the rate of deaths among miners or railway servants, because the latter were only employed say twelve hours, while sailors were continuously employed: but the force of this argument would be at once taken away if the rate of fatal accidents among either railway servants or miners was doubled; even then it would be found that the rate of accidents was two to three times as great among the seamen as it was amongst the other classes enumerated. The late Dr. Farr showed in a report which he prepared for the registrar-general, and in it he entered at con-

siderable detail into this question, that whereas among the men of the royal navy the death-rate from all causes was 14 per 1,000, the death-rate in the mercantile marine was from 21 to 22 per 1,000. In order that there might be no mistake about this average rate of mortality, he analysed the ages of the men, and showed that the difference between the average age of the men in the royal navy and those in the mercantile marine was under two years. He also showed that whereas in the royal navy of the 14 per 1,000 deaths two-thirds of those deaths arose from disease, on the contrary in the mercantile marine two-thirds of the deaths arose from accident. He had never seen those figures in any way controverted, and they were of so important a character that they would well repay examination by any Fellow of the Society. The members of this Society did not desire to exaggerate in any way the rate of fatal accidents which prevailed among the mercantile marine over the royal navy or any other occupation. Their only interest was to arrive at the truth, and there was no greater danger of missing that result than by exaggerating their statements at the commencement; if therefore his figures could be in any way controverted, he should be most happy to hear any such solution of the question.

Mr. John Glover thought that the remarkable series of groupings of the twelve years with which Mr. Scrutton had dealt, was about the most striking illustration of the bad uses to which statistics could be put if people were so inclined, that he had even heard in that Society. They had twelve years of figures; Mr. Scrutton said the statistical method was to take each year by itself with its facts, with its weather, and with any extraordinary casualties which happened to belong to it, not to mislead themselves by grouping in periods of six, four, or two years, and least of all to take out of a series of possible groups that one which indicated the very worst conclusions concerning those who carried on a most hazardous, and yet most necessary trade. Such a method of grouping was neither statistical, philosophical, nor patriotic; the appeal made in the paper was an appeal against big totals. For instance, they were told that 35,660 people had been lost in twelve years, but they had not been told the number of lives exposed during those twelve years to which that loss related. That figure in itself was therefore of no more value than if he were to try and harrow their feelings by saying that they lived in a city in which nearly a million of people had died in the last twelve years. A man who knew nothing about statistics might say at once, "well, that is a city I had better get out of as fast as possible;" although as a matter of simple fact London was the healthiest city in the world. So also with reference to the loss of life at sea. They heard on great authority that that loss was 1 in 60, and then the figure was reduced to 1 in 56. Mr. Scrutton challenged both those figures and the result showed that nearly one-third had to be deducted; what was the consequence? Instead of being 1 in 60, or 1 in 56, the loss of life was on the admission of the marine secretary of the Board of Trade found to be more

correctly stated as 1 in 76, which compared favourably with the loss of exposed lives in other occupations. With regard to the total lives exposed to risk there was, as had been disclosed in the paper, an extraordinary difference of opinion between the authorities. Mr. Scrutton had said he could name 258,623 persons as having been occupied in seafaring occupations to whom that loss of life related, and had given further reasons for believing that that 258,623 ought to be increased to 300,000. Mr. Giffen put his name to reports which were continued until a late period, in which the number was given as 292,000, which was not very far from Mr. Scrutton's total. How then did they get down to the smaller figure of 186,000 or 209,000, including masters, of which the 1 in 60 was the result? It was done by a process which was not statistical at all, but only guessing. It was a mere estimate of what might, could, would, or should be. He hoped that Mr. Scrutton's appeal would receive the careful consideration of this Society; what they desired to know were the facts, whether the deaths were 1 in 76, 1 in 70, or 1 in 56. It was, however, not a mere question of what the loss was, but whether it was increasing or decreasing. If the loss was an increasing one, it must demand serious attention; if it was decreasing under the operation of ordinary economical and commercial laws, the best thing for the State was to let it alone, and allow these causes to fulfil their natural operation. Sir Thomas Farrer, in an opinion given to a committee of the House of Commons on this subject in 1880, said, "the loss of both ships and lives has been diminishing gradually from the year 1818 down to the present time;" and he further added, "it is my belief that the general improvement of the mercantile marine is such as to reduce losses, and that it is a great mistake to suppose that in later years there has been greater recklessness than in earlier years." If in a period of transition and growth—during which they had been converting wooden ships into iron and steel ships, and had so added to their mercantile marine as to have under the English flag as much effective carrying power as there was under all other flags put together—they had also a gradual decrease in the loss of life in carrying out such immense and nationally beneficial operations, it seemed to him that that was as much as reasonable Englishmen ought to expect. After all, however, whatever the loss of life at sea, if a further loss could be prevented it was their duty to prevent it. It was therefore desirable to consider what might be supposed to be the preventible area of loss. There was one class of losses, namely, those arising from storms or fogs, which were not within the preventible area. These were about 30 per cent. of the total loss of life. A second large deduction from the perventible area consists of losses which arise from human frailty and error. Perfect men are not to be had even for sea service. Sixty per cent. of the total loss of life at sea is the result of human defect in its various forms. These two quantities, 60 and 30, making 90 per cent. of the total loss of life at sea, were not preventible by any legislation. They could not legislate human nature into perfection, and only 10 per cent. was left in which there was a little preventible loss of life at sea. How were they to operate in that matter? Of course the

whole loss of life at sea might be prevented by stopping on shore. It might be stopped by simply passing an Act of Parliament that they should leave their food to be carried by foreigners, as well as grown by them. That however would not suit the English nation. There was no department of maritime enterprise that lost more life than fishing, but were they willing to give up fish because of that risk? It was quite certain they would not. Englishmen had made up their minds that they were to be the great sea carriers of the world, and they must have the fortitude to expend the life which was inseparable from that position, or they would not keep it. He did not think that Mr. Scrutton meant to reflect in the slightest degree on any of the Board of Trade officials. Parliament ordered the Board of Trade officials to do impossibilities, and they were not done.

Mr. J. G. Rhodes said he was, although interested in shipping as an investment, not a managing owner of vessels, and he did not wish any remarks he might offer to be supposed to come from a man who understood technically the management of ships. Mr. Glover rather went into the region of moral obligation. He (Mr. Rhodes) did not for a moment wish to say that that was not an obligation resting upon all of them in all their dealings, but the Statistical Society was only concerned with obligation in so far as it was to be deduced from comparative statistics; in the present case, the dangers which arose from the employments of the mariner and from other employments on shore. It had been suggested that in respect to mercantile sailors the basis of comparison should be the census. That was an extremely fallacious basis to go upon. The basis which obtained in railway employment, for example, was not that of the census, but that of the returns of the number of people whom the railways employed; and surely it was desirable that the basis should be adopted in respect to the mercantile marine. It would follow that, although they might take exception to making an estimate of the number of people so employed by using the figures of the employed ships and the crews which they were permitted or obliged to ship, it would be a proper basis of comparison if any means could be adopted by which the actual crews so employed upon the actually employed ships were taken. He did not see any difficulty in arriving at a table or return of that kind, always supposing that the officials were at once set in motion with a view to get the information sought. Coming to the question of "preventible" loss of life, it was reasonable that they should record the time pertaining to the risk. Supposing there were a risk which might be expressed by the figure 2, extending over sixteen hours a day, if he took upon himself a like risk for twenty-four hours, it should be immediately expressed by the figure 3. If that was applied to the mercantile marine, they would follow him when he suggested that assuming the number of sailors on a voyage to be 100, and they wished to compare their risk with that run, say by railway servants who might be assumed to be in risk about sixteen hours a day, they would have so to speak 150 day voyage lives in risk as

against the 100 employed on the railway. It was necessary to take what might be called a compound integer in considering this question, such as the "foot-pound-minute" in mechanics, and he therefore would be disposed to take as the integer for comparison in the case under review something which he should call the "day-voyage-life," and by that means a fair basis of comparison between risk at sea and risk on land might be arrived at. He quite agreed that risks should be discriminated, and that the accidental risks of port should not be lumped with the risks at sea. Neither could he understand how they could lump together risks incurred in sailing vessels and risks incurred in steamers. All these discriminations should clearly be made.

The PRESIDENT called attention to one point alluded to by Mr. Rhodes, viz., the estimate of the seafaring population, upon which all other estimates were based. There was a clear fallacy in taking the number of seamen recorded at the census of 1881. He did not wish to enter into the question of Mr. Scrutton's general argument, but he must totally disagree upon his figures with reference to the number of seamen, including as he did all who called themselves seamen, whether they were in hospital, on shore, or anywhere else. On asking a friend to ascertain what was the deduction that ought to be made for that class, he found that in 1881 no numbers were given, but in 1861 2½ per cent. or 2,200 out of 94,000 were in asylums, were paupers, prisoners, and lunatics, and were not available seamen at all. Then again many of those were out of employment, some of them incapable or worthless fellows. The census could not therefore be taken as the number afloat. Then again Mr. Scrutton excluded men in colonial vessels and all fishing vessels, some of whom were certainly included in the 258,000. With reference to the general question it was quite clear that they could not enter into minute calculations. It was said with regard to the hours of the employment of these men, that they must take twenty-four hours for seamen and only twelve or sixteen for railway men; but why should they take twenty-four hours for the seamen throughout the year, when one-third of their time was spent in port not exposed to the risk of the sea? (Mr. SCRUTTON said he meant at sea.) The PRESIDENT said it was clear they could not enter too minutely into those details. He did not quite concur with Mr. Hendriks that some or many of these accidents ought to be included amongst the preventible accidents to which seamen were peculiarly exposed, as any other class would be equally exposed to them. (Mr. HENDRIKS: with the exception of intoxication.) The PRESIDENT said he differed from that view; he thought a great many of them were not accidents peculiar to seamen, and they could scarcely be brought as a charge against the management of shipowners in their dealings with their ships and men.

Mr. SCRUTTON in reply said the number of seamen according to a parliamentary return in 1875 was 216,000; in 1876, 215,000; in 1877, 213,000 and so on, 212,000, 210,000, 210,000, 209,000,

212,000, and 217,000. There was no justification for saying there had been anything like a variation of 10 per cent. (Mr. NEISON said he was referring to the returns of the registrar-general on shipping.) Mr. SCRUTTON replied that Sir Thomas Brassey stated that the number of seamen had very little varied for long periods of years. There might be extra ships, but owing to the introduction of machinery such as steam winches, capstans and the like, a less number of seamen were required. The number of men per 100 tons had gone down, and the total number had not increased in anything like the proportion they might have expected from the additional tonnage. He thanked the Society for the attention that had been given to his paper, and hoped that thereby the cause of truth had been promoted.

The PRESIDENT having tendered the thanks of the Society to Mr. Scrutton, the proceedings were brought to a close.

Further Notes *on the* Progress *of the* Working Classes *in the* Last Half Century.

By Robert Giffen, Esq., LL.D.

[Read before the Statistical Society, 19th January, 1886. The President, Sir Rawson W. Rawson, K.C.M.G., C.B., in the Chair.]

The great interest attaching to it must be my excuse for returning to the subject of my inaugural address as President in the session of 1883-84. I do not propose to bring forward many new facts: the most important, in truth, lie on the surface, and apart from an elaborate investigation, which has yet to be made, and which may in fact be impossible, owing to the defectiveness of the earlier records, I doubt whether much could be added to the triple and quadruple chain of evidence by which the great progress of the working classes in the last half century is proved. The great rise of money wages among labourers of every class, coupled with stationary or even falling prices of commodities on the average, the all but universal shortening of the hours of labour, the decline of pauperism, the enormously increased consumption of the luxuries of the masses, the improvement in the rate of mortality—these and other facts combine to prove that there has been a great general advance in well being among the masses of the community. The evidence is cumulative, and to disprove or throw doubt on one item in the long list of particular facts supporting any one of these propositions hardly affects the impression given by the survey of the whole. To justify the belief that there has been no great general advance, every one of these propositions would have to be disproved, and an opposite set of statements all hanging together, and all supporting the view of retrogression, or no advance, or very little advance, would have to be made good. There are too many facts to permit the setting up of a plea of ignorance or impossibility of arriving at any conclusion. But while hoping to add very little to the main propositions formerly advanced, it may perhaps be possible to clear up some misconceptions which have arisen, and to discuss a few subsidiary or connected questions which are intrinsically of great importance: questions as to the degree of the improvement, as to the way in which it is diffused, as to the improvement in other countries, as to the movements in prices which have occurred or are in progress, as to what is meant

by the phrase "working classes," and whether for purposes of strict economic discussion the meaning of the phrase, as popularly understood, ought not to be widened—are all raised by the general discussion, and their consideration should help to throw light on the main question itself. In any case the paper will be a peg for discussion among yourselves, on a subject which happens to attract an unusual degree of attention at the present moment.

The Reasons for a Fifty Years' Comparison.

Before passing on to some of the points just mentioned, let me glance only for a moment at a preliminary point, which has given rise to observations at which I have been very much astonished. Why select for comparison with the present time, it has been said, a period just half a century ago? It has even been hinted, I believe, that being no friend of the working classes, and holding a brief from the capitalist classes so called against them, I selected the date of half a century ago with malice aforethought, knowing that the working classes were then in a state of special degradation; so that what I show as an improvement in their condition is really no more, or little more, than a recovery of the position which they formerly held. In reply to all this I am sure it is hardly necessary to repeat here, what must have appeared so reasonable to all of you—that the date of fifty years ago was selected because it happened to be the jubilee of the Statistical Society, and the beginning of various official statistical records which are beyond measure useful and even indispensable in such investigations. I do not know that it would have been possible to give a better or more natural reason. In a Society formed to promote the study of statistics, and where special attention has always been given to this kind of investigation, it is surely of the highest utility that on the occasion of our jubilee we should review the history and see what the statistics, which we have helped not a little to improve, tell us regarding the problems it has been our object as a Society to inquire into. There must be some very clever people in the world, when the explanation of a deep design against the working classes as the motive for choosing the period half a century ago can be substituted for the very obvious and natural explanation which I gave in the address itself.

I have not introduced this point, however, merely to give a personal explanation. The selection of a date half a century ago for comparison with the present time having been challenged, I should like to point out that in fact, and apart from the reasons I have given, such a period is a very good one to select. The danger of short periods in such discussions is obvious. There are so many complicated causes affecting human affairs, and there is

so much oscillation and fluctuation in them, that if short periods only are taken into account, what is in fact an eddy in the main stream of events may be mistaken for the main stream itself. We see this mistake made in some of the fair trade discussions now going on, a decline in the value of our exports at present being spoken of as if it were a permanent decline, whereas in our own country, ever since we had such records, and in every country that has had them, there have been from time to time in particular years declines in aggregate value of a far more marked character than anything we are now witnessing, these fluctuations however being quite consistent with steady progress from period to period. I do not say that comparisons are not to be made at all for short periods: for many purposes such comparisons are useful. But for a purpose like the one now in hand, any comparison of the general condition of the working classes would not only be difficult for a very short period, but would perhaps be impossible. A comparison for a period of fifty years in an age of great movement is free from many of the difficulties incidental to a shorter period. It allows for the occurrence of several natural cycles of prosperity and adversity in trade, and gives time for adjustments in money wages and prices due to currency and money market changes, or to such events as the gold discoveries of Australia and California, to be made. On the other hand, as compared with longer periods, a period only fifty years ago is more easily understood; there are many persons living who can remember so far back, and whose memory can check any slips that are apt to be made by the mere student of records without a knowledge of the actual life. In other words fifty years is perhaps a long enough period for comparison in an age of active movement, as a distinct step in one direction or another can be perceived; and it is not too long a period, looking to the facilities for check, and for the proper understanding of the facts, which its nearness to the present time presents.

I should like to add farther that a comparison with a date fifty years ago has this advantage, that we do in fact know from "Porter's Progress of the Nation" that considerable progress was made by the masses of the community between the beginning of the century and the year 1836, when he wrote his book. That was Porter's view at any rate, and although every such opinion is of course subject to criticism, the fact that a statistician like Porter, writing at the time, and acquainted with the notions then prevalent, as well as with the official figures, should assume the fact of considerable progress in his time, is of course of great weight. Having given some attention to Porter's figures, I have come to the conclusion that the evidence he presents is very strong, that there was progress among the masses in the first thirty or forty

years of the century, though nothing so decisive as what has since taken place. Virtually then, if we accept Porter's conclusion, we are able to assert a continuous improvement among the masses of the community from the beginning, or nearly the beginning, of the century to the present time—a very long period indeed in the life of a nation. In a practical discussion, looking at the way the entire conditions of life and industry have changed in the period in question, it would not be expedient I believe to go farther back. There is little practical utility it seems to me in a comparison between the comparatively scanty agricultural communities which formed the population of this country at any time before the beginning of the present century, and the vast multitudes who are now supported by a highly developed manufacturing system. We have in fact to consider problems as affecting these multitudes, which could not be considered at all before the present century commenced, because until that time agriculture was the staple industry, and the nation subsisted on what was produced at home. However we have arrived at our present condition, we have to take the facts as they are, and the main fact in a material view undoubtedly is that coincident with the most unprecedented growth of population in an old country, a growth far beyond the limits of the home means of subsistence on the present scale of living, there has been a general advance in the scale of living itself. How far the facts of the future are likely to correspond is a question of the deepest interest, but on which antiquarian researches, though useful in their own place, can throw very little light.

I should like to add, however, by way of caution to students of the subject in its antiquarian aspect, that the commonly entertained view as to a degradation of the condition of the masses of the people having occurred before the period at which I commenced, requires very careful consideration and criticism. When mass is compared with mass from century to century, there are many reasons for doubting that degradation took place at any time, and for believing on the contrary in a slow and gradual improvement for many centuries past. The increasing rapidity of the growth of population, indicating a diminishing rate of mortality, is alone so significant as to throw doubt on many conclusions as to the deterioration of the masses at any period. These conclusions appear to have been formed very often without much attention to the relative numbers of different classes in different periods, or to the question what classes in one age are the proper analogues of the classes in a different age; the modern agricultural labourers of England, for instance, being sometimes compared with the yeomen of a former time, whereas the middle and

superior artisan classes now occupy the place in society of the former yeomen. Statistically all such questions are of obvious importance, and any study which overlooks them should be distrusted. When they are attended to, I doubt if there is any period of more than a century's duration in our history (with the single exception perhaps of the second century after the Black Death, after which event there was, according to all the authorities, a sudden and exceptional advance, which may not have been quite maintained) in which the condition of the masses has not been better than in the period just before. At any rate the greatest care is required in studying the books on the subject.

The Rise in Money Wages.

Passing from this preliminary point, I come to the question of the degree of improvement in the condition of the working classes in the last fifty years. In my address I was careful not to give a precise answer to this question, and it is not one perhaps to which a very precise answer can be given. All the elements are indeterminate. Not only the individuals but the classes at different rates of wage are innumerable, and they are differently constituted at the beginning and end of the period; while many of the facts which indicate conclusively a great average advance in well being help very little in solving the farther question as to the degree of improvement. But while no very precise answer is possible, I wish to point out that the reasons for believing in a very considerable degree of improvement, almost if not quite to the extent of enabling us to say that the working classes are twice as well off as they were fifty years ago, are so strong as to be beyond reasonable doubt. The data may be incomplete, but read with a little care they show us that the minimum limit of the improvement must be a very high one.

As to the question of a great rise in money wages, which is conclusive of the whole matter if we admit that prices on the average have not increased, I do not suppose there is any real doubt anywhere. The only serious challenge to the assertion of general improvement which I have seen was given by Mr. Hutchinson, in the "Nineteenth Century," for October, 1884; but Mr. Hutchinson based his objection mainly on the statement that prices and the cost of living have risen. As to the rise in money wages, he says: "It is no part of my purpose to dispute that the working man of "to-day is not in a better position, that he is not better fed, better "clothed, better housed, and better educated than his immediate "fore-elders as a class may have been. The broad fact is that with "the advent of railways, and other improved means of communi-"cation and distribution, there has been a greater call upon his

" resources, and a consequent rise in the remuneration of his " labour." This admission, it may be observed, goes even farther than the purpose for which I am quoting it, and in fact admits my whole argument; but as Mr. Hutchinson proceeds to qualify it in the remainder of the last sentence, which I do not quote, though I think his qualification really inconsistent with the admission itself, I only quote it for what he does substantially admit, viz., the fact of a rise in the remuneration of labour. It is true that Mr. Hutchinson adds in a foot note, " From oral information obtained in answer to " questions addressed to the older workmen in various trades, as to " the relative position monetarily of the two periods, I am disposed " to doubt that there has been such an advance all round as " Mr. Giffen states." But this " disposition to doubt," without any stated facts to back it, and without defining what he understands me to have said on this head, does not amount to much, and the statement of a great rise in money wages passes in fact unchallenged. I may add that in the course of a very voluminous correspondence, which my address two years ago has entailed upon me, I have not had a single letter questioning the fact of a great rise in money wages, though I have had not a few letters in the opposite sense. This negative confirmation, when there are so many people living who could state contradictory facts if they knew them, is obviously of the highest value.

Still, in the absence of express questions, and of any allegation of contradictory facts, there is some unwillingness to admit, I think, the full meaning of the facts which I stated. Improvement of some kind is admitted, but there is a vague feeling that the figures are too few to support the conclusion which I drew, that it is at least between 50 and 100 per cent., and with an allowance for the shortening of the hours of labour, may be placed nearer the 100 than the 50, if not over the 100. I confess that an improvement of 50 per cent., apart from the shortening of the hours of labour, would in my opinion be immense, and I should be quite satisfied with the general admission of so great an improvement. All I would urge is that while so much improvement must at least be admitted, there is no small ground for adopting the higher figure of 100 per cent. or thereabouts.

Now as to the fewness of the figures respecting the rise in money wages which I quoted, let me point out that having regard to the sources from which the figures were taken, and the nature of the facts to be illustrated, the results were of a convincing kind. What I did mainly was to take the records of wages from the volumes of trade, revenue, &c., fifty years ago, and wherever it was possible to obtain a figure at that time which could properly be compared with the similar figures in the " Miscellaneous Statistics "

at the present time, to make the comparison. In addition, I referred to the only other official record of wages we have got, that of seamen, though it only goes back for about thirty years; and the only unofficial figure I quoted was that of Sir James Caird with reference to the wages of the agricultural labourer, his figure in turn being based largely on official evidence. Substantially then what I made use of as far as possible were official data, such as they were, without any process of selection or adaptation. The result was that among the sixteen items obtained for comparison from the miscellaneous statistics, there was in all cases an advance of some sort, and only in three instances an advance of less than 50 per cent. The advance was generally over 70 per cent., and in some cases over 100 per cent. The trades referred to included the textile manufactures, mines, and the housebuilding trades, embracing therefore a large part of the population. As regards seamen's wages again, the record showed usually an advance of about 70 per cent. in thirty years. I am still of opinion that such figures, corroborated as they were by Sir James Caird's conclusion as to the advance in agricultural wages, were entitled logically to very great weight. There having been nothing arbitrary in the process of selection, it was impossible to suppose that accident could have brought it about that in all cases where a comparison could be made there should invariably be found a large money advance. As we must assume that like causes produce like effects, there must equally have been an advance in those wages where no comparison could be made. I am disposed even to go farther in this question of the bearing of the evidence. Where it is well ascertained in a number of cases that the remuneration of workmen for precisely the same labour is 100 per cent., and in others say 50 per cent. more than it was, I am disposed to believe that the advance all round must approach to the higher figure. It is the higher percentage which should be held to be the governing percentage. The reason is that the maximum increase would not be paid in any case without a real scarcity of the labour required in proportion to the work to be done; that this scarcity could only arise in a rapidly increasing population either from a disproportionate growth of the industry, which does not appear to have occurred in some of the cases in question, or, in the absence of such a disproportionate growth, from a demand for the labour in other pursuits; and that on the other hand the smaller percentage of increase in other cases might arise from the substitution of one kind of labour for another, the proper comparison in the latter case being not between the actual payments at different times for the same work done, but between the payments to the labourer engaged and the payments which would have been made to them for the inferior

labour from which they have been taken away. To put a concrete instance: it is quite possible that the lower kinds of skilled work may now be performed by workmen or the children of workmen who were previously wholly unskilled—who were agricultural or general labourers. In that case the wages they receive for the higher work are properly to be compared with those they received as unskilled labourers, not with those formerly paid for the same work. Were this to be done, the general rate of advance would be found to correspond more nearly than might at first be thought with the maximum advance in particular cases.

It may perhaps be urged *per contra* that there may be a deterioration of labour; that there are high wages in certain cases, because workmen refuse to learn and are becoming less skilled, and not because of a scarcity of skilled labour arising from an increased demand for it, and that the lower percentage of increase in other cases is due to the inroad of competitors from above and not from below. Such an explanation it appears to me would be very far fetched indeed, and would be quite inconsistent with the general conditions of modern industry, which makes heavier and heavier demands on the intelligence, education, and moral qualities of the workman. But if no such explanation is admissible, then we must admit that among instances of increase of wages among the working classes for apparently the same work, the higher percentages of increase are more likely to correspond with the average general increase in wages than are the lower percentages.

The point does not seem to me doubtful, but in any case it is one on which a judgment must be formed when we are dealing with so complicated a question as the general increase of wages in a country like England. The employments in the aggregate being so entirely different from what they were formerly, many new ones coming into existence, while the old ones die out, we must remember that the comparison of wages in the same employments, that is, for precisely the same work, only gives an approximation to the result which we wish to arrive at. The question remains whether the ruling tendency has been to change from employments at low wages to employments at high wages, and if that be the case, then the changes showing a maximum increase in rates for apparently the same work are more likely to correspond with the average improvement than are changes showing a minimum increase.

There is another aspect of the question which has also to be considered. The wages mainly dealt with in the figures which I quoted from the "Miscellaneous Statistics" were those of the artisan classes. I was content, as regards the wages of agricultural labour in Great Britain, to refer to Sir James Caird as an authority for an increase of 60 per cent. in the latter case. What I have now to

point out is, that looking at the facts broadly, and granting that the artisan classes on the average have only improved about 50 per cent. or thereabouts in money wages, yet the facts that the artisan classes as a rule are better paid in money to the extent of 50 per cent. and upwards than the agricultural labourers, and that the increase of population in the last fifty years has been among the artisan and middle classes, the agricultural labourers having diminished in numbers, would in fact imply that the average money wages of the working classes of the community, looking at them in the mass, and comparing the mass of fifty years ago with the mass of the present time, have increased very nearly 100 per cent. The average was determined in Great Britain fifty years ago by a mass composed in nearly equal proportions of agricultural and non-agricultural labour; in the United Kingdom it was composed in nearly equal parts of non-agricultural labour in Great Britain, of agricultural labour in Great Britain, and of the poorly paid labour of Ireland, agricultural and non-agricultural together, receiving in the aggregate only half the rate per head of even the agricultural labour of Great Britain, and only a third or less of the rate per head of the non-agricultural labour of Great Britain. Now the mass is composed in something like the following proportions:—

Non-agricultural labour in Great Britain	Three-fourths.
Agricultural labour in Great Britain	One-eighth.
Labour in Ireland	„

In other words, the last two classes, which constituted each about one-third of the whole manual labour class of the United Kingdom fifty years ago, now constitute only one-eighth each, and the remaining highest paid class which was only one-third fifty years ago, is now three-fourths of the whole. Even allowing for no advance at all in the average earnings per head of the latter class, such a change would involve a great advance in the mass. I propose to illustrate the matter practically in the course of this paper, but a hypothetical illustration may be useful. Supposing that the wages of the three classes were respectively 60*l.*, 40*l.*, and 20*l.* fifty years ago, and that the wages themselves have not risen at all since then, we should get the following average wages fifty years ago and at the present time, in consequence of the mere change in the composition of the mass. Dealing with a supposed mass of 600 labourers in each case, I submit the following comparison:—

Labourers.	Fifty Years ago.			Labourers.	Present Time.		
	Proportion.	Wage.	Total Earnings.		Proportion.	Wage.	Total Earnings.
		£	£			£	£
200	$\frac{1}{3}$rd	60	12,000	450	$\frac{3}{4}$ths	60	27,000
200	$\frac{1}{3}$rd	40	8,000	75	$\frac{1}{8}$th	40	3,000
200	$\frac{1}{3}$rd	20	4,000	75	$\frac{1}{8}$th	20	1,500
600	—	40	24,000	600	—	$52\frac{1}{2}$	31,500

Average improvement about 33 per cent.

Thus without any increase of wages at all, there is an enormous improvement simply because the population at the higher rate of wages has increased disproportionately to the others. If now we allow for an improvement of 50 per cent. only in the unit of each class, we get the following result:—

Labourers.	Fifty Years ago.			Labourers.	Present Time.		
	Proportion.	Wage.	Total Earnings.		Proportion.	Wage.	Total Earnings.
		£	£			£	£
200	$\frac{1}{3}$rd	60	12,000	450	$\frac{3}{4}$ths	90	40,500
200	$\frac{1}{3}$rd	40	8,000	75	$\frac{1}{8}$th	60	4,500
200	$\frac{1}{3}$rd	20	4,000	75	$\frac{1}{8}$th	30	2,250
600	—	40	24,000	600	—	$78\frac{3}{4}$	47,250

Here the average improvement is very nearly 100 per cent., with a rise of only 50 per cent. per head in the wages of each class.

It is this element in the question, viz., the change in the composition of the mass of labourers, which appears to be altogether overlooked in a mere comparison of the wages of a given employment fifty years ago and at the present time. When such comparisons have been made at any length which may be thought expedient, a still broader survey of the facts must be made. What kinds of labour have increased, and what kinds have diminished, become most important considerations. For this reason among others I attempted no exact statement of averages

in using the table of money wages which I gave in my former paper. The general run of the facts appeared to be more interesting and instructive than any attempt at exact percentages of increase or decrease, which are in truth impossible in such an inquiry, though the general conclusions may themselves be beyond doubt. What I have said may show that even an improvement of only 50 per cent. in wages, which nobody seems to question, comparing given employment with given employment, implies, under the actual circumstances of a change in the composition of the working population, a much greater improvement on the average than 50 per cent.

A third fact on which I desire to lay some stress in a question of the average improvement in money wages, is the very great improvement which has taken place in the wages of the lowest class of labour. The tendency of the economic changes of the last fifty years has been to reduce the proportion of this description of labour to the total mass; its numbers have diminished on account of the openings for labour in other directions; but the diminution has gone along with a steady improvement in the condition of the most unskilled labourers themselves.

To illustrate this point I have printed in the appendix (see Appendix A), extracted from the tables of revenue, commerce, population, &c., and from the "Miscellaneous Statistics of the "United Kingdom," particulars of the wages paid to the non-agricultural labourers fifty years ago and at the present time. The list is much longer for the present time than for the earlier date, but some items fifty years ago and at the present time can be compared. Generally the effect appears to be that while the highest class of unskilled labour or little skilled labour of a non-agricultural description fifty years ago was paid about 15*s.* per week, the corresponding figure at the present time, by which I mean of course about two or three years ago, is about 25*s.* weekly. Similarly about fifty years ago a labourer's common wage was about 11*s.* or 12*s.* weekly; and the run of the figures now is about 17*s.* or 18*s.* up to 20*s.* or 21*s.* weekly. The wages are higher in London and some of the leading manufacturing towns than elsewhere, but comparing like with like the above figures seem to give a fair idea of the change which has occurred. In other words, the improvement is from 70 to 90 per cent. in the money wages of unskilled non-agricultural labour. Some particulars may be stated in a tabular form thus:—

Wages of Unskilled Labour (Non-Agricultural) Fifty Years ago and at the Present Time.

[Compiled from the particulars in Appendix A.]

	Fifty Years ago.	Present Time.	Increase.	
			Amount.	Per Cent.
	s. *d.*	*s.* *d.*	*s.* *d.*	
Labourers, London	15 –	25 –	10 –	67
„ Bradford	15 –	21 9	6 9	50
Bricklayers' labourers, Manchester	12 –	22 –	10 –	83
Spademen, Manchester (maximum)	15 –	22 –	7 –	50
Bricklayers' labourers, Glasgow	9 –	18 –*	—	—
Stocking makers, Leicester	8 3	14 –†	5 9	70
Labourers, Londonderry	8 –	16 –‡	8 –	100

* 48 hours weekly at 4½*d.* per hour.
† Lowest wage quoted for Leicester. ‡ Dublin.

I should have liked to give a longer table, but substantially, keeping in mind the logic of the facts, even a short table may satisfy us of the magnitude of the improvement in the wages of unskilled labour. It will not fail to be observed that the improvement seems to be greater in Glasgow than in the more southern parts of the country, and there is a similar improvement in Ireland, though I have only been able to give a Dublin quotation in place of a quotation from Londonderry fifty years ago. This may remind us of another change which seems to have been going on in respect of wages. There has been equalisation in given employments throughout the country. Consequently where rates were relatively lower fifty years ago, there has been more advance than in other cases. This is a fact to be kept in mind when wages in a particular employment in a given place seem to have advanced little. In the employment itself there may have been a great advance, through wages in the lower paid places advancing to the higher level.

A similar table can be prepared with reference to agricultural labour. I have placed in the appendix (see Appendix B) a comparison of the rates of wages in different counties of the United Kingdom fifty years ago, and at the date of the recent Royal Commission on Agriculture; the particulars as to the period fifty years ago being extracted from Mr. Purdy's two papers on agricultural wages, read before the Statistical Society in 1861 and 1862,* in which he made use of published and unpublished official returns; and the particulars as to the more recent period being condensed from the reports of the assistant commissioners to the Royal

* See Statistical Society's *Journal*, vol. xxiv, pp. 328—373, and vol. xxv, pp. 425—490.

Commission on Agriculture. The general effect of this table is that while the rise in some counties in England, *e.g.*, Kent, is little more than one-third, yet there are many counties, particularly in the south and west, and Wales, in which the circumstances were very distressing fifty years ago, where the rise is 50 per cent. and upwards. In Wales the rise would seem to be about 100 per cent., and in Scotland and Ireland there is nearly as great an improvement. Altogether the comparison would seem to confirm very fully the fact of an average rise of 60 per cent. which Sir James Caird has stated, and which was the figure I made use of in my former paper.

And the inference from these figures as to rude labour, whether agricultural or non-agricultural, is plain. If the rise has been so great in the wages of a large class of labour at the very bottom of the scale, which has itself been diminishing in quantity because the demand has been more and more for skilled labour of some kind, then we may be tolerably certain that the rise in skilled labour itself, man for man, has not been less, while the improvement in the mass must be greater still for the reason already stated, viz., that the proportion of skilled labour to the whole mass has increased and that of rude labour declined.

In connection with these facts I may also refer, without further dwelling on it, to the fact mentioned in my former paper, that the number of income tax payers has increased in the last fifty years at a much greater rate than the increase of population.* Mr. Goschen, in his recent address at Manchester on trade depression, has cited fresh figures relating to the last ten years only, entirely confirmatory of the statement, which is placed altogether beyond doubt. It is difficult to suppose that at the bottom of the scale rude labour has improved its money wage, as we have seen, and that at the top of the scale the number of income tax payers has increased, without a corresponding average improvement having taken place all through the intermediate mass.

Altogether then the incredulity with which the assertion of an average increase of 100 per cent. in the money wages of the working classes in the last fifty years, was received in some quarters, does not appear to have any justification. There are plenty of facts which are well known and even familiar to justify the assertion, when these facts are themselves studied in connection with the changes in the composition of the mass of the working classes which have undoubtedly occurred.

Before passing from this point, I may refer briefly to one or two statements which have appeared since I delivered my address, and

* "Progress of the Working Classes," Statistical Society's *Journal*, vol. xlvi, pp. 593—622.

which throw additional light on the subject. First of all I would quote a letter of Mr. Bright's, giving his own experience as a manufacturer, which cannot but be considered a valuable piece of evidence, Mr. Bright being one of those whose memory goes back over the whole period, and who is able to check the dry figures which may be compiled from official and other sources.

"Let your workmen reflect on the change in their condition "which free trade has made within the last forty years, since the "reform of our tariff. The Corn Law was intended to keep wheat "at the price of 80*s.* the quarter; it is now under 40*s.* the quarter. "The price of tea is now less than the duty which was paid upon "it in former days. Sugar is not more than one-third of its cost, "when a monopoly of East and West India sugar existed. As to "wages in Lancashire and Yorkshire, the weekly income of the "thousands of workers in factories is nearly, if not quite, double "that paid before the time when free trade was established. The "wages of domestic servants in the county from which I come "are, in most cases, doubled since that time. A working brick-"setter told me lately that his wages are now 7*s.* 6*d.* per day; "formerly he worked at the rate of 4*s.* per day. Some weeks ago "I asked an eminent upholsterer in a great town in Scotland "what had been the change in wages in his trade? He said that "thirty to forty years ago he paid a cabinetmaker 12*s.* per week; "he now pays him 28*s.* per week. If you inquire as to the wages of "farm labourers, you will find them doubled or nearly doubled in "some counties and generally over the whole country advanced "more than 50 per cent., or one half, while the price of food and "the hours of labour have diminished. It may be said that milk "and butter and meat are dear, which is true, but these are dear "because our people by thousands of families eat meat who "formerly rarely tasted it, and because our imports of these "articles are not sufficient to keep prices at a more moderate "rate."—*Extract from letter from Mr. J. Bright, M.P., to Mr. A. Wilde.* ("*Times*," 18*th November*, 1884.)*

The next figures I propose to refer to were given by the President of the Manchester Statistical Society, Mr. Montgomery, in his very interesting address on 19th November, 1884. Mr. Montgomery tells us that, through the courtesy of friends, he has obtained the rates of wages paid in different mills and works in Manchester and neighbourhood in 1834 and at the present time. There are nine spinning mills and five weaving mills as to which he gives details,

* Mr. Bright has since elaborated this theme in one of his election speeches at Birmingham, but the above appears sufficient for the present purpose. There is no doubt there are many specific cases of an improvement of 100 per cent., even comparing employment with employment.

while he also gives averages for calico printing, bleach works, dye works, calendering works, mechanical engineering, glass makers, Macclesfield silk trade, building trades, tailors, and policemen, without however going into details respecting these occupations, as in the case of the spinning and weaving mills. As to the result Mr. Montgomery gives the following general summary:—

	Percentage of Increase.
Spinning	63
Weaving	43
Dyeing	16
Calico printing	46
Calendering	47
Bleaching	32
Mechanical engineering	18
Glass making	40
Macclesfield silk trade	37
Building trades	46
Tailoring	53
Police	46

And from this Mr. Montgomery concludes that the *average* percentage of increase for all trades, 1834-84, is $40\frac{7}{12}$, which is the mean of the percentages in the summary; and he points out afterwards that this percentage is lower than the figure I had arrived at. From what I have already said you will understand that even an average improvement like this in the wages of manufacturing labour at Manchester, would imply a much greater improvement on the average throughout the United Kingdom. But Mr. Montgomery's figures in detail, if I may be allowed a remark by way of criticism, are better than his average. His figures, when analysed, do not tell a tale substantially different from mine. Looking through his tables, I find that there are not a few cases of increased wages of 100 per cent. and upwards; that in other cases the average of a particular mill or a particular class of work is pulled down by some specially small percentage of increase (*e.g.*, in bleach works there is a class called "stovers," whose increase of wage is only 3 per cent., and if this item were omitted, the increase in bleach works on the average, instead of being 32 per cent., would run up to 38 per cent.); and that but for these exceptions to the general run of the figures, the average, even on the plan adopted by Mr. Montgomery, would come out much higher than $40\frac{7}{12}$ per cent. Keeping in mind what I have already said as to the probability of the higher rates of increase for the same work being more likely to correspond with the general average of improvement for all work, that work itself changing greatly, than are the lower rates of increase, the data which Mr. Montgomery has supplied appear to me to confirm most fully

the conclusion that there is an improvement all round in given employments, at any rate if we allow for the shortening of hours of labour, closely approaching 100 per cent.

While commenting on these figures of Mr. Montgomery's, I should also like to point out in passing that the mode of arriving at an average which he employs is one which is somewhat dangerous in an investigation of the present kind, and which ought not to be made use of without grave reserves. Thus as regards spinning, he makes an average of spinners, piecers, tenters, and winders and reelers separately; then adds all together and divides by four; whereby he arrives at an average of 63; although in three out of the four classes the average is higher than this. The average is brought down because in the case of spinners the improvement is only 36 per cent. It is possible that on account of their numbers spinners should either count in a proper average as more than 1 to 4, or less than that. The neglect of relative numbers in calculating these averages is accordingly most serious, and makes the whole process incorrect. In the absence of any knowledge of relative numbers, a good deal of consideration should be given to the run of the figures, extremes, whether high or low, being looked on with some suspicion, and especially in this question, I believe—for the reasons I have already stated—the low extremes. Similarly, in the final summary which I have quoted, each of the trades named is treated as a single and equal unit. The Macclesfield silk trade, glass making, mechanical engineering, and dyeing, giving an average increase of 28 per cent. only, are treated as the equivalent of spinning, weaving, calico printing, and calendering, giving an average of about 50 per cent. increase. The average in each particular trade is thus in the first instance obtained by a somewhat doubtful process, and then the different trades are combined by a similar process. Notwithstanding, therefore, the percentage which Mr. Montgomery arrives at, I believe it is impossible to look at the figures and take into account the numerous cases of large percentages of increase, coupled with a preponderance of cases at rates much higher than his average, without coming to the conclusion that he underrates the real average improvement which has occurred.

In any case, I need hardly say, a well ascertained increase of over 40 per cent., coupled with shortened hours of labour, would show an enormous improvement in the condition of the masses of the community. It is so important, however, that data such as Mr. Montgomery has collected should be rightly used, that I hope to be excused for insisting so much on this question of method, and not merely resting satisfied with the broad conclusion that there is an improvement of 40 per cent. It may be hoped that in

time there will be many similar collections of figures, and in this view the right handling of them will be of great importance. It need hardly be added, after what I have already said, that even if a right average could be obtained for particular districts such as Manchester, it would have to be considered how far each particular district represented the general progress of the whole community. If town districts like those of Lancashire grow at a faster rate than rural communities, where wages on the average are less than in those town districts, if England itself grows in population at a greater rate than Scotland, and grows while Ireland loses, wages in England being higher than in Scotland or Ireland, then it is exceedingly probable that the percentage increase of wages in Manchester and neighbourhood in fifty years is less and not more than the average of the whole of the United Kingdom.

Before passing from these Manchester figures, it is interesting to notice, I think, that as regards builders' wages, where Mr. Montgomery happens to refer to the same items as are referred to in the short table contained in my former address, the figures used by Mr. Montgomery and myself are very much the same, though drawn from different sources. Thus he gives bricklayers' wages in Manchester fifty years ago as 23*s.* and at the present time 36*s.*, the corresponding figures in my paper being 24*s.* and 36*s.* Joiners he quotes as 24*s.* and 36*s.*, the figures in my paper for carpenters being 24*s.* and 34*s.* Masons he gives as 27*s.* and 32*s.*, the figures in my paper being 27*s.* and 29*s.* 10*d.* In these particular cases, therefore, the details given by Mr. Montgomery, while agreeing very nearly with mine, exhibit on the whole a somewhat larger advance. So far as these figures go, therefore, we may infer that the data in the miscellaneous statistics are trustworthy, and above all do not exaggerate the improvement in workmen's money wages which has occurred.

The next set of figures to which I propose to make a brief reference are those which Mr. Leone Levi published about a year ago. You will recollect that in my former paper I referred to the desirability of a continuation of the work which our colleague accomplished in 1867, and I may congratulate him therefore on his having been able to do so. We have now accordingly for two dates, 1867 and the present time, a statement of the average earnings of the working classes of the community, made up so as to show the aggregate earnings of each class and of all workmen together, and so as to show therefore an average per head. The period covered is of course too short to enter into the present comparison, but so far as the figures go they are confirmatory of the general conclusion. In the seventeen years 1867-84 Professor Levi finds that the aggregate earnings of the working classes have risen from 418 million

to 520 million pounds, or nearly 25 per cent., the increase of the numbers being only 11 per cent.; and the average increase per head is from 38*l.* to 42*l.* 14*s.*, or rather more than 11 per cent.

Allowing that probably since 1873 there has been little increase in the money wages of working men, but in some cases there has been a decrease, so that the improvement since 1867 only includes altogether a short period in which improvement could take place, the fact that there is nevertheless an improvement of 11 per cent. all round, not counting the shortening of the hours of labour, is confirmatory as far as it goes of an enormously greater improvement in the whole period from fifty years ago to the present time. Part of my former case was that although the cases were comparatively few in number in which the miscellaneous statistics enabled us to go back fifty years, yet in detail shorter periods could be compared more fully, and in each shorter period a considerable increase was to be traced. I should have expected beforehand, even in the period mentioned by him, rather a larger increase than Professor Levi brings out, but the increase in the short period he mentions, is certainly quite sufficient to confirm the former statement as to the effect of the wages returns in the miscellaneous statistics.

It only remains to notice briefly what the improvement in wages abroad has been in a corresponding period. The fact of such an improvement would of course tend to confirm the evidence of improvement at home, showing it to be in no way an isolated fact, but part of a wider improvement. This question, however, was dealt with so ably by Mr. Jeans in the paper he read in December, 1884, that I need only glance at it. I desire mainly to refer those of you who are interested in this matter to two works which have recently appeared, giving a great deal of information on this head. The first of these works is that of M. Yves Guyot, "Principles of "Social Economy," of which there is now an English translation (London: W. Swan, Sonnenschein, and Co.). I extract from this work, and place in the appendix (see Appendix C), two tables as to workmen's and workwomen's wages in France early in the century, and at the present time, showing that in the case of workmen in the building trades the rise is in many cases from 69 to 105 per cent., and in others from 41 to 75 per cent., with the one exception of an increase of 20 per cent. only; while in the case of the workwomen, the increase is over 100 per cent. in seven out of nine cases given, and on the average is 94 per cent. These figures fully confirm the official French figures given by Mr. Jeans, showing an average improvement all over France between 1853 and the present time. Similarly M. Yves Guyot gives various figures showing progress in Germany, principally in Alsace. I have extracted two of these

tables in the appendix: the first, showing rates of increase at Mulhouse ranging between 60 and 256 per cent. since 1835, being particularly striking. The second book I refer to is that of Mr. Lowthian Bell, on "The Manufacture of Iron and Steel" (London: George Routledge and Sons), in which, while comparing English and foreign wages at the present time, he states incidentally not a few facts as to the increase of foreign wages. The cases of increase are not uniform, Mr. Bell as a rule not going back much before 1869, but there is evidence of a considerable increase since that time. For instance, in an establishment on the Rhine, consisting of blast furnaces, foundry, and engineering shops, the average yearly earnings of the whole establishment per man were 31*l.* 7*s.* in 1869, and in 1878 40*l.* 12*s.* per man, having been in 1873 as high as 52*l.* 16*s.* per man. I must refer you, however, to the book itself; it would be unfair to quote at any greater length.

Both the gentlemen I am quoting note that the increase in wages which has taken place is very largely in the lower kinds of labour, or in districts where wages were previously low. M. Yves Guyot dwells particularly on the fact of the improvement in women's wages. Such facts are of real importance in the question, and go far to confirm what I have already urged as to attaching special weight to the cases of a maximum increase of wages. If the wages of labourers at the bottom of the scale have increased at a greater rate than others, this would imply a very large aggregate improvement indeed, on account of the great mass of the labourers at the bottom of the scale.

Summing up this part of the argument to-night, what I have to urge is that not only is an increase of money wages in the last fifty years clearly ascertained, as well as the probability that this increase cannot be less in almost any case than 50 per cent.; but it is also evident that the increase in very many cases is at a much higher rate, while it is antecedently probable that the increase of the higher rates, where it is possible to compare wages with the same work, indicates more closely the general average increase than does the increase at the lower rates. Then we find that the changes in the composition of the mass of the people, consisting in an increase of artisan and skilled labour in enormous proportion, while the proportion of rude and unskilled labour has enormously declined, are such as to imply a greater average improvement in the whole mass than if we merely compared one specific employment with another. We find also that at different intervals during the fifty years improvements have occurred corroborating the inference of a great improvement which is drawn from a review of the whole period. Finally, there is an improvement abroad which quite corresponds to the improvement at home. That the degree

of improvement in money wages in the last fifty years is accordingly very considerable, not far short of 100 per cent., and probably exceeding that figure, if we compare strictly the whole mass with the whole mass, appears to be in this way fairly established.

It follows consequently that if prices have not risen as compared with what they were fifty years ago, but have rather declined, as I believe them to have done, the only exceptions being rent and "meat," which I dealt with in my former paper, then the vast improvement which I described in the condition of the working classes has undoubtedly occurred. They have at least had the means, whether they have used them wisely or not. On this head, I may remark, there is also practically no question raised, the only challenge I know of being that of Mr. Hutchinson already referred to. Mr. Hutchinson indeed gives a list of prices from the file of the "Leeds Mercury" in 1835 and 1884, of a very curious description; but the list does not include clothing, while as to flour he admits himself that the average facts fifty years ago and at the present time do not correspond to the indication of the table. He might have said the same of potatoes and one or two other articles, including bacon, which has undoubtedly not risen in price on the average, and comparing period with period as he represents it. The facts remain undisputed that as regards bread stuffs, clothing, tropical produce, and miscellaneous articles of every sort, prices range lower at present than they did fifty years ago. *Per contra* there has been an advance in meat, except bacon; but with this exception mainly, the changes of prices in the last fifty years have benefited the workman. A sovereign goes farther than it did. As to meat, I shall have something to say later on as to its not concerning the workman fifty years ago as it has since done, the rise in price being in fact due to the increased consumption of meat by the masses. But allowing for the fall in other articles, it may well be doubted whether the advance in meat, admitting it to have been an article of general consumption fifty years ago, is not fully compensated.

The Position Fifty Years ago.

To bring out more fully the degree of improvement which has occurred, I have thought it might be useful to make various extracts from the literature and blue books of fifty years ago, showing how workmen lived, and how differently the condition of the working classes was then spoken of from what would now be the language used.

I may refer first of all generally to Carlyle's "Sartor Resartus," and "Past and Present," as containing in an extreme form the pessimistic view of the condition of England question. Carlyle's

theme constantly was that thousands and millions were starving and permanently under-fed, in fact in the most hopeless condition. Thus in "Past and Present," p. 234, he speaks of "two million "shirtless or ill-shirted workmen sitting enchanted in workmen's "bastilles, and five million more (according to some) in Ugolino "hunger cellars." Some of you also may perhaps remember the description in "Sartor Resartus" of "potatoes and point" as the diet of the Irish peasant. Carlyle constantly spoke of the situation as so terrible and hopeless, that even the abolition of the insane corn laws would only give from ten to twenty years of new possibility.

Similarly there are some curious passages in Mr. Disraeli's "Sybil." I shall give only one or two extracts. The first is a description of the workman's home: the point here being that the home spoken of is that of the ordinary British peasant, and not merely of the "outcast," of whom we have heard so much lately:—

"To that home, over which malaria hovered, and round whose "shivering hearth were clustered other guests besides the "exhausted family of toil, Fever, in every form, pale Consumption, "exhausting Synochus, and trembling Ague, returned after "cultivating the broad fields of merry England, the bold British "peasant, returned to encounter the worst of diseases, with a "frame the least qualified to oppose them; a frame that, subdued "by toil, was never sustained by animal food; drenched by the "tempest, could not change its dripping rags; and was indebted "for its scanty fuel to the windfall of the woods."—"Sybil," p. 49.

Then we have a dialogue like the following, on the rate of wages:—

"'And what is the rate of wages in your part of the world, "'Lord Marney?' inquired Mr. St. Lys, who was standing by.

"'Oh, good enough; not like your manufacturing districts: but "'people who work in the open air instead of a furnace, can't "'expect and don't require such. They get their 8*s*. a-week, at least "'generally.'

"'Eight shillings a-week,' said Mr. St. Lys. 'Can a labouring "man with a family perhaps of eight children live on 8*s*. a-week?'

"'Oh, as for that,' said Lord Marney, 'they get more than that, "'because there is beer money allowed, at least to a great extent "'among us, though I for one do not approve of the practice, and "'that makes nearly 1*s*. per week additional, and then some of "'them have potato grounds, though I am entirely opposed to "'that system.'

"'And yet,' said Mr. St. Lys, 'how they contrive to live is to "'me marvellous.'

"'Oh, as for that,' said Lord Marney, 'I have generally found

" 'the higher the wages the worse the workman. They only " 'spend the money in the beer shops. *They* are the curse of " 'this country.' "—P. 95.

Then we have pictures like that of 600,000 handloom weavers ruined by machinery, and earning wages of 1*d.* per hour, and a discussion on the increase of population, which I venture to quote :—

" 'I speak of the annual arrival of more than 300,000 strangers " 'in this island. How will you feed them? How will you clothe " 'them? How will you house them? They have given up " 'butcher's meat; must they give up bread? And as for raiment " 'and shelter, the rags of the kingdom are exhausted, and your " 'sinks and cellars already swarm like rabbit warrens.'

" ''Tis an awful consideration,' said Egremont, musing.

" 'Awful,' said Gerard, 'it is the most solemn thing since the 'deluge. What kingdom can stand against it? Why, go to your " 'history—you're a scholar, and see the fall of the great Roman " 'Empire—what was that? Every now and then there came two " 'or three hundred thousand strangers out of the forests, and " 'crossed the mountains and rivers. They come to us every year, " 'and in greater numbers. What are your invasions of the " 'barbarous nations, your Goths and Visigoths, your Lombards " 'and Huns, to our population returns.' "—P. 120.

Even more striking to me, however, because having a ring of most intimate acquaintanceship with the people described, are the descriptions in " Mary Barton." I could hardly imagine any of the artisans in the cotton trade at the present time using the following language which the authoress puts into the mouth of Barton :—

" 'If I am out of work for weeks in the bad times, and winter " 'comes, with black frost, and keen east wind, and there is no coal " 'for the grate, and no clothes for the bed, and the thin bones are " 'seen through the ragged clothes, does the rich man share his " 'plenty with me, as he ought to do, if his religion wasn't a " 'humbug?' "—P. 6.

Both as to the description of probabilities of distress and the disposition of the richer classes the picture would now be untrue. Then we have such a description as that of the Oldham weaver :—

> " Oi'm a poor cotton-weyver, as mony a one knoowas,
> Oi've nowt for t' yeat, an' oi've worn eawt my clooas,
> Yo'ad hardly gi' tuppence for aw as oi've on,
> My clogs are both brosten, an' stuckings oi've none,
> Yo'd think it wur hard,
> To be brought into th' warld,
> To be—'clemmed,'* an' do th' best as yo con."†

* " Clem," to starve with hunger. " Hard is the choice, when the valiant " must eat their arms or *clem.*"—Ben Jonson.

† " Mary Barton," cheap edition, p. 26.

I do not propose, however, to weary you with extracts. What I am anxious to impress is that these are descriptions intended to apply to large masses of workmen in the leading industries of the country, with whom bad times were familiar, and who in the best of times never attained the prosperity of our present artisan classes.

If we turn to the blue books, we find ample facts telling their own tale, and I give in the appendix a list of such blue books (see Appendix D) which I have looked into, and which I would commend to the perusal of those who are inclined to dispute that the condition of the workman of this country fifty years ago was so different from what it is now, that when we read it we appear to be reading of a different world. I may refer them, moreover, to a book written forty years ago by Mr. W. T. Thornton, whose name many will recognise as that of a very able economist, and whose abilities I have admired, though on many points I have differed from him. His subject is "Over Population and its Remedy," and the second and third chapters of this book are practically a summary of the blue books referred to. After speaking of the agricultural labourers of Lincolnshire and Rutland, and of Cumberland and Westmoreland as forming the happiest portion of the English peasantry, although "such labourers as are entirely dependent on wages, although "they may be secure from want, can scarcely be said to know "anything of comfort,"* Mr. Thornton goes on to describe the mass of agricultural labourers in very different terms. This is his description of the Dorsetshire labourer:—

"In general a field labourer cannot one week with another "earn more than 8*s.* A woman may earn 6*d.*, 8*d.*, or a 1*s.* a day, "according to the season, but the employment of women in "agriculture is not continuous, and it is supposed that the "earnings of a cottager's wife throughout the year do not much "exceed 50*s.* A man and his wife may therefore earn 9*s.* a week, "or 23*l.* 8*s.* a year, to provide for three and a quarter persons on "an average. Fifty shillings go for rent, 30*s.* for fuel, 30*s.* more "for soap and candles, and 5*l.* for clothes, leaving 12*l.* 18*s.* a year, "or about 8½*d.* a day, to buy food for the family, that is to say, a "fraction more than 2½*d.* a head daily. Taking the average price "of such bread as is used by the peasantry in the west of England "to be 1*s.* the gallon loaf of 8 lbs. 11 oz., and that of potatoes "to be 1*s.* 2*d.* per bushel of 55 lbs., 2½*d.* will purchase about "29 oz. of bread or 10 lbs. of potatoes. In Ireland, where the "character of the potato may be presumed to be best understood, "5 lbs. are considered no more than a sufficient meal for a

* "Over Population and its Remedy," p. 19.

"labouring man; but it appears that two of such meals a day are "as much as the Dorsetshire labourer can venture to indulge in. "It must be borne in mind that these calculations are not intended "to represent the actual condition of the Dorsetshire labourer, but "rather to show what it would be if every able-bodied man had "to maintain an equal proportion of the helpless members of the "community. Most of the aged and orphan poor are maintained "by the parish, but it must not on that account be supposed that "the average number of persons for whom an agricultural "labourer has to provide is less than one and a quarter, or that "person's share of the daily 8*d.* worth of food is proportionably "greater. Marriages take place both much more frequently and "much earlier among labourers than among people of higher rank, "and their families are consequently larger than the average. "Certainly the real condition of the Dorsetshire peasantry is very "little, if at all, superior to the description given above. Bread "and potatoes do really form the staple of their food. As for "meat, most of them would not know its taste, if once or twice "in the course of their lives—on the squire's having a son and "heir born to him, or on the young gentleman's coming of age, "they were not regaled with a dinner of what the newspapers call "'old English fare.' Some of them contrive to have a little bacon "in the proportion, it seems, of half a pound a week to a dozen "persons, but they more commonly use fat to give the potatoes a "relish, and as one of them told Mr. Austin, 'they don't *always* go "'without cheese.'"*

In Wiltshire and Somersetshire Mr. Thornton goes on to say that matters are still worse with the labourer, whose food is bread and potatoes, as in Dorsetshire, but with a larger proportion of potatoes and a smaller of bread. Wages in Somersetshire, he states, are sometimes as low as 6*s.* a week, with an allowance of cyder, estimated to be worth 1*s.* 3*d.* a week. The range of the labourer's condition throughout England was between this low extreme and the condition of things in Lincolnshire already referred to. As regards Norfolk and Suffolk, where the condition was supposed to be above the average, he states, referring to a recent period of low prices of agricultural produce and distress: "Even when employ- "ment was abundant, and while wages remained at the old rate of "10*s.* a week, the peasantry of these two counties seldom tasted "anything better than dry bread; so that when employment was "only to be had every other day, and the rate of wages fell to "7*s.* or 8*s.* a week, their situation became truly deplorable." We are justified then in describing the general condition of the agricultural labourer in England as deplorable in the extreme, his

* "Over Population and its Remedy," pp. 20–22.

average wages being only 10*s.* a week even in good times, and many being far below that average; while the happier but smaller portion in Lincolnshire and the northern counties of England had little more than a sufficiency of plain food, and no surplus.

So much for agricultural labour in England. As regards the Welsh labourers Mr. Thornton states:—

"The Rebecca riots that took place in South Wales, in the "summer of 1843, drew a large share of public attention to the "state of the inhabitants of that quarter, where the peasantry "seem to be worse off than in the worst parts of England. Seven "shillings a week—the minimum of English agricultural wages— "are there the maximum, and are obtained only by labourers in "the employment of landowners and gentlemen farmers. Male "labourers commonly have their cottages rent free. Most of the "farms, however, are small, not extending beyond 100 acres, and "the poorer farmers pay their men only 8*d.*, 9*d.*, or at most a 1*s.*, "a day, or 6*d.* or 8*d.* a day with food, if, as is often the case, the "men board with their masters. Coarse barley bread, flummery, "and potatoes, are almost their sole food, and many of the small "farmers themselves have little else except milk cheese and bacon. "They seldom taste any other animal food."*

It must always be remembered that in these discussions we are not speaking of England merely, but of the whole United Kingdom, which must all be taken into account, even if we were dealing with England only, because the English labour market has itself been largely recruited in the last fifty years from other parts of the United Kingdom. Of course the labourers in Scotland and Ireland were not to be compared with those of England fifty years ago, poor as the latter were. As regards Scotland, Mr. Thornton's statement, p. 41, is explicit, that the diet of the agricultural labourers, whether in the bothy or the farm house, consists principally of meal, potatoes, fish, milk, cheese, and butter, but they are occasionally treated with butcher's meat. This statement, as far as a certain part of the Lowlands is concerned, I can fully confirm from my own personal recollection. And beyond food there were no large payments in money. The condition of things was not intolerable, the plain living being accompanied by a good deal of culture and high thinking, but in material resources the Scotch peasant was certainly not better than the average agricultural labourer in England. In Scotland, however, there was a lower deep, the misery in the Highlands, and especially in the West Highlands and islands, being pitiable in the extreme, thousands upon thousands being undoubtedly in a state of semi-starvation.

* "Over Population and its Remedy," pp. 26 and 27.

As regards Ireland, I need not harrow you with details of the melancholy condition of things even before the potato famine. In Ulster the food of the peasantry, where the wages were about 1*s.* a day, is described as consisting of meal, potatoes, and milk; in the southern districts of potatoes and milk without meal, the money wages being 8*d.* a day; and in the western districts of the potato alone, without meal, and in most cases without milk, the money wages on the average being not more than 6*d.* per day. The want of employment of any kind at any wage, the semi-starvation, the want of clothing and shelter accompanying this state of things need not be described in detail. I may refer you to the book itself.* What I am anxious to bring out now is that the descriptions apply to one-third of the labouring population of the United Kingdom of fifty years ago. Whatever may be the state of things in Ireland now—and they have certainly improved to an enormous extent in the last half century—my present point is that in the population of the United Kingdom in the course of fifty years English and Scotch artisans have been largely substituted for the semi-starved or wholly starved peasantry of Ireland, and many of the descendants of these Irish peasants are in fact to be found in our English and Scotch manufacturing towns.

The labouring population of the towns of the United Kingdom, with the exception of artisans, in good times were only a few degrees better off than their agricultural neighbours.

In some conspicuous cases, particularly that of hand-loom weavers, there was great distress. One condition of the manufacturing population, moreover, was that of great fluctuation. "A "short time back," says Mr. Thornton, "the greater part of this "vast multitude [400,000 male adults = about 2 millions] seemed "to be sunk in the lowest depth of misery. Thousands were "wholly unable to procure employment, and might be seen "standing in constrained idleness about the streets, or might be "found in their dismal houses bending over a scanty fire, their "heads sunk on their breasts, and surrounded by pale emaciated "beings, imploring them for food which they knew not where to "seek."† No doubt there have been descriptions in the last year or two of a certain part of the shipbuilding operatives as suffering in a similar manner; but what I wish to draw attention to is that Mr. Thornton's description applies to the greater part of the whole manufacturing population of England, the condition of the agricultural labourers in England, Scotland, and Ireland, then the mass of the population, being what has already been described.

It would be wearisome to multiply details, but depression in

* "Over Population and its Remedy," chap. iii.

† Ibid., p. 31.

trade was so different fifty years ago from what it is now, that I may be permitted a few farther extracts. Stockport is specially mentioned, the Poor Law Commissioners having sent assistant commissioners to inquire into the state of things there. Among many other facts the assistant commissioners state: "Of 15,823 "individuals, inhabiting 2,965 houses, lately visited under the "direction of a committee appointed for the purpose, 1,204 only "were found to be fully employed, 2,866 partially employed, "and 4,148 able to work *were wholly without employment*. The "remaining 7,605 persons were unable to work. The average "weekly income of the above 15,823 persons was 1*s*. 4¾*d*. each. "The average weekly wages of those fully employed was 7*s*. 6¼*d*. "each. The average weekly wages of those partially employed "4*s*. 7¼*d*. each."* Mr. Thornton goes on to add:—

"The distress of which there are such convincing proofs was "aggravated at Stockport by local causes, but it existed in a degree "very little inferior in most other manufacturing towns. It was "particularly severe throughout Lancashire and those parts of "Yorkshire in which the cotton manufacture has its principal seat. "In Manchester there were said to be 9,000 families earning on an "average only 1*s*. a week. In Bolton out of fifty mills, which had "formerly employed 8,124 workmen, thirty mills with 5,061 work-"people were standing idle or working only short time. The "weekly earnings of the bed-quilt and counterpane weavers were "reduced to less than one half of their amount in 1838. Those of "the hand-loom weavers, though long before depressed, had fallen "again, from 6*s*. to 3*s*. 7½*d*. The destitution of the operatives and "the embarrassments of their employers were shared more largely "by the tradesmen and handicraftsmen whose customers they had "been. In Bolton a diminution of 3,651*l*. took place in the weekly "amount of wages paid in twelve trades. Out of 150 carpenters, "formerly earning 25*s*. a week each, only 25 remained in full work, "and 15 in half work, and the number of masons was reduced from "140, earning 34*s*. a week, to 50, earning 10*s*. 6*d*. Very similar and "not much more moderate were the sufferings of the clothworkers "of Yorkshire and Wiltshire, of the silk weavers of Spitalfields "and Macclesfield, the lacemakers of Nottinghamshire, the fitters "of Staffordshire, and the hardware makers of the same county, of "Warwickshire, and Sheffield. In the last mentioned town, where "in 1836 there was not a single able bodied man out of employ-"ment, there were in 1842 1,000 families supported by contribu-"tions from the trades to which they belonged, at the rate of "1*s*. 3*d*. weekly for each person, and hundreds more were in the "receipt of parish relief. In Leeds 4,025 families, being one-fifth

* "Over Population and its Remedy," p. 37.

" of the whole population, were dependent on the poor's rates. " But it is needless to multiply examples, for no one can have " forgotten the formidable riots that took place in the midland " counties in the summer of 1842, and which sufficiently attested " the desperate condition to which the operatives were reduced. " Almost everywhere and in almost every manufacture the com- " plaint of the workmen was the same, of the difficulty of obtaining " employment, and of the utter impossibility of earning a competent " livelihood."*

As regards Scotch operatives specially, Mr. Thornton also writes :—

" Manufacturing operatives are in pretty much the same position " in both countries. Those of Scotland shared even more largely " than their southern brethren in the distress of 1840-42, when " Paisley in particular exhibited scenes of woe far surpassing any- " thing that has been related of Bolton or Stockport."†

The point of all this is that whatever may have been the ordinary wages in good times of manufacturing operatives, who constituted no doubt with the workmen in the building trades the most comfortable part of the working population of the United Kingdom, though after all only a small part of that population, yet the liability to extreme fluctuation that has been described has to be taken into account in comparing even such a population with a similar population at the present time. The complete or almost complete suspension of the ordinary wages for long intervals not only reduces the average wage, but shows a general condition of things which makes it impossible to compare at all the operative and superior workman of fifty years ago with similar classes at the present time, who have not for many years—in fact nearly for thirty years—been subject to any such general suspension of wages. The proportion of such operatives and superior workmen to the whole mass was much smaller fifty years ago than it now is, but even the smaller mass then was subject to an extreme of fluctuation of which the present generation has no conception.

The Working Class Consumption of Meat Fifty Years ago.

After the descriptions just quoted of the general condition of the masses fifty years ago, in which the question of their consumption of meat is referred to among other points, it may seem unnecessary to refer more at length to this question. It is only too plain that the masses of Irish peasants, and of English and Scotch agricultural labourers, as well as labourers in towns, who

* " Over Population and its Remedy," pp. 78 and 79.
† Ibid., pp. 37 and 38.

constituted a far larger proportion of the population of the country than the same classes do now, had most of them hardly any meat, very many none at all, in their diet, while the "occasional" meat some of them had was seldom anything else than bacon. At the same time, the better classes of workmen, the aristocracy of the labourers, who were smaller in proportion to the population than the same classes are now, were liable to fluctuations of employment, during which the great majority had to endure very short commons indeed. The point of meat consumption is, however, so important as a test of condition, that at the risk of being tedious I propose to add a few more observations, in order specially to deal with a challenge given to my remarks on this head by Mr. Hutchinson in the article already referred to. Mr. Hutchinson's challenge enables me to illustrate in a striking manner the difficulty of using statistics properly, and the especial danger of using figures without thinking of the facts behind them.

The statement I made in my former paper which Mr. Hutchinson challenged was as follows:—

"It may be stated broadly that while sugar and such articles "have declined largely in price [in fifty years], and while clothing "is also cheaper, the only article interesting the workman much "which has increased in price is meat, the increase here being con- "siderable. The 'only' it may be supposed covers a great deal. "The truth is, however, that meat fifty years ago was not an article "of the workman's diet as it has since become. He had little more "concern with its price than with the price of diamonds. The "kind of meat which was mainly accessible to the workman fifty "years ago, viz., bacon, has not, it will be seen, increased sensibly "in price."

And Mr. Hutchinson's mode of challenging this statement was, first, to omit altogether the last sentence, which admitted that there was one kind of meat consumption in which the workman was interested fifty years ago—not a very candid proceeding, on which, however, I make no farther comment, my only object being to make quite clear what I did say,—and next to refute me, as he supposed, by making the following reference to Porter's "Progress "of the Nation:"—

"In answer to this astounding statement," says Mr. Hutchinson, "I cull the following from Mr. Porter's 'Progress of the Nation,' "Section 1, pp. 122 and 123, edition 1836:—

	£	s.	d.
Average earnings of labouring men, compiled from answers to queries from 856 parishes in England. Men only....	27	17	10
Ditto from 668 parishes, with wages of wife and children....	13	19	10
Annual average income of family	41	17	8

"To the farther question, 'could such a family subsist on the "'aggregate earnings of the father, mother, and children, and if "'so, on what food?' answers were received from 899 parishes "to this effect:—

Number of parishes	899
No (simply)	71
Yes („)	212
Barely, or without meat	125
With meat	491

"which gives an average of over 50 per cent. of the labouring "class—that is, the poorest paid class of labour—who had meat as "a portion of their regular diet. If we take into account the "large number of artisan families, dwellers in towns, Mr. Giffen's "extraordinary assertion will not be left with a leg to stand "on.

"If farther refutation of Mr. Giffen's glaring misstatements "were necessary, there are great numbers of men and women "living who can supply data for a reliable history of the social "condition of the people, even were there no written materials "available for the purpose."

Mr. Hutchinson according to this believes that over 50 per cent. of the English agricultural labourers had meat as a regular portion of their diet fifty years ago, and not merely pork or bacon, which I had referred to as the kind of meat in which workmen were almost exclusively interested, but other meat—the meat which has since risen in price. He appeals not only to a table in Porter's "Progress of the Nation," but to the recollections of living men and women. After the passages I have already quoted, not merely recollections of people still living, but contemporary statements by people like the late Lord Beaconsfield, Mrs. Gaskell, Mr. Thornton and others, I am sure everyone will agree that Mr. Hutchinson's belief is itself astounding. Those who knew the working classes best fifty years ago, and their condition was inquired into frequently, were certainly under a different impression, while the records of money wages showed it to be impossible that they could have meat other than bacon as a regular part of their diet, while as to bacon itself there was a doubt.

But what of Porter's table which Mr. Hutchinson summarises? I believe you will not be surprised to learn that the table, like many other statistical tables, requires a little consideration, and perhaps no one would have been more surprised than Mr. Porter to see the use which Mr. Hutchinson makes of it. The table is given by Mr. Porter to assist a comparison between the condition of English agricultural labourers and similar labourers in different continental countries, and he makes hardly any comment on it. The primary

question submitted, however, to those who answered it was whether the earnings recorded by way of answer to the previous questions were sufficient to enable the average labourer to live without parish relief. The "how" was a secondary question, not put so carefully, and to which it was obvious correct answers were not so easily to be obtained. The reply that the labourer could live or could not live without parish relief was definite enough, as also the statement that he could live barely or without meat, this being purely a negative statement; but the phrase "with meat" is obviously not a very precise one, and nothing more seems to have been meant by it than that the labourers in question had or could have meat occasionally, a feature of interest in making comparisons with foreign labourers, who never had meat at all, but not the same thing as a statement that "meat" was a regular constituent of the labourer's diet. Mr. Hutchinson's gloss that half the poorest paid class of labour fifty years ago "had meat " as a portion of their regular diet," is entirely unsupported by anything in Porter, or by a due consideration of what the phrase " with meat" in the table probably means.

I need not add that in dealing with such a table the value of the information contained should be scrutinised very carefully. Mr. Porter does not criticise the figures, but neither does he vouch for them, or lay much stress upon them; and when we come to look into them, I think it may be said that the average earnings arrived at by summarising the answers to a previous question is not itself a particularly good figure, while on such a question as how labourers live, the answers are still more difficult to summarise. The sources of the information are replies to questions in a circular from the Poor Law Board, by the clergyman or some local gentleman in each of nine hundred parishes—about a fifteenth part of the total parishes in England—who are asked to state what average wages are, and whether and how the labourers can live on them! Clearly in such replies there is an unusual opening for the personal error which the most careful scientific observations are exposed to. In making such an average, even the best observers would be liable to be swayed by their own personal experience; one man would take for a type the sober thrifty labourer in regular employment, perhaps a labourer who was really more or less skilled; another would take the very rudest labourer; very few would or could take the trouble to make a proper average. In actual fact also many of the observers in the present case, as they show by their answers, were highly prejudiced, a correspondent in one parish saying the poor can do very well and are only too well off, and a correspondent in a neighbouring parish saying they cannot live at all. Apart from

prejudice, the difficulty of defining what is meant by an average wage is serious. To how many non-statisticians would any of us trust an inquiry as to what an average is, and how carefully we should scrutinise the replies when we got them to see what each man meant. But the replies thus obtained from a small percentage of places only are added together and divided by the number, so as to give the average earnings of agricultural labourers in all England, and so as to show how they live, whether with meat or not. How differently each man was likely to define in his own mind what the phrase "with meat" meant!

But we are not left to conjecture what random answers were given in reply to the question how the average labourer lived. I extract from Porter, and put in the appendix, the detailed summary of the answers, county by county (Appendix E), and I have also added in several cases (Appendix F) the actual answers from which this summary is compiled. It is impossible to go a step without perceiving that the phrase "with meat" is a very elastic expression. Thus to take Wiltshire, you will see from the table that out of twenty-four answers in that county, no less than twelve are put down as being to the effect that labourers had meat. I confess that after what I had read *passim* of the condition of labourers in Dorsetshire, Wiltshire, and Somersetshire, I was somewhat staggered by this, if the phrase "with meat" were to be understood as meaning that the Wiltshire labourer had meat as a regular portion of his diet, and not merely bacon "occasionally," but, as Mr. Hutchinson implies, other meat than bacon. The actual twenty-four answers from Wiltshire are, however, as follows, and the point is so serious that I need make no apology, I trust, for inserting them in the text:—

Name of Place and of Respondent.	Answers.
Alderbury Parish and Sarum Division— G. Fort, J.P.	Yes. Cannot say upon what food. Would be improved by renting a small plot of land
St. Andrew, Blunsdon— J. J. Calley	Yes; upon bread, potatoes, and tea
J. Wild	Generally speaking they could not
Box— S. Pinchin, overseer	Yes; principally upon potatoes
North Bradley— S. Singer, assistant overseer	Yes, certainly they could; comfortably
Burcombe— J. Rogers, overseer	In the present times they might; on good wheaten bread, butter, cheese, bacon, and potatoes; most of them having ground
Castle Coombe— G. P. Scrope	Could barely subsist on these earnings. Should the husband drink, or be below the average of labourers, the food would be potatoes alone, with little or no bread
[Answer also refers generally to the Hundred and Division of Chippenham]	

Name of Place and of Respondent.	Answers.
Chilmark— F. Lear, rector	Yes; on the produce of the garden and pig-meat, and the corn afforded them at a reduced price
Chippenham— G. S. Bradbury, assistant overseer	Yes; food—bread, bacon, cheese, and potatoes
Compton Chamberlaine— J. King, churchwarden and overseer	Do not think they could
Corsham— W. Arnold, assistant overseer and vestry clerk on behalf of Select Vestry	Yes; chiefly on bread and vegetables
Corsley— H. A. Fussell, churchwarden	Yes; but almost wholly on vegetables, with bread occasionally
Downton— G. Matcham	Yes; on bread and potatoes, with the addition of bacon about once a week
J. Reeves and J. G. Bailey, trustees of Stockman's Charity	They would get no relief from the parish, but do not know how they manage
Fisherton Anger— H. G. de Starck, curate W. Blake	They might live well on bacon, bread, and potatoes
Fonthill Gifford— J. Still, jun., officiating minister	A labourer can with difficulty supply his family with food, consisting of potatoes and bread
West Grimstead, Pitton, and Farley— G. F. Watkins, curate of Grimstead and Farley	Bread, potatoes, and other vegetables, and tea form their principal food, with a small quantity of butter, cheese, and bacon
Heytesbury, C. A. A' Court, J.P.	The families can and do subsist on these earnings. They have usually tea in the morning, potatoes and salt with a few greens in the middle of the day, with the addition of bread, and occasionally a small piece of bacon in the middle of the dish of potatoes at the evening meal
Heddington— J. T. Du Boulay, rector	Several families in this case have subsisted without parish relief on bread, potatoes, a little bacon, and tea
District of Hungerford and Ramsbury— E. W. L. Popham, Lt.-Gen.	The family could subsist on bread, meat, and vegetables, with wholesome beer if the malt could be procured free of duty
Liddington— H. Reeves	Yes
Monkton Farleigh— J. Long	There is no want in this parish
Norton Bavant— J. M. Sidford, overseer	I consider they can live
Pitton and Farley, united parishes— C. F. Watkins, curate of Farley	They might on bread, butter, cheese, tea, vegetables, and occasionally a bit of bacon
Rodborne Tything (Malmesbury parish)— R. Pollen	They subsist a good deal on potatoes, and could live decently on these earnings. They kill a pig once a year
Whiteparish— G. Lawrence, J.P., and one of the Select Vestry	A family can subsist on the earnings; the food—tea, bread, butter, cheese, and bacon; the latter, supposing a pig is kept, which is generally the case. Fresh meat is scarcely ever bought by the labourers

It will be observed from this, that in only one of all the answers is meat *eo nomine* spoken of; in all the others where any sort of meat is spoken of the word is bacon or pig-meat. Usually too the bacon is spoken of as only occasional. The curate of West Grimstead, for instance, speaks of a small quantity of butter, cheese, and bacon entering into the diet of the labourers, and Mr. C. A. A' Court, J.P., of Heytesbury, speaks of "occasionally a small piece of bacon "in the middle of the dish of potatoes at the evening meal." Mr. Lawrence, J.P., Whiteparish, says expressly, after referring to bacon, that "fresh meat is hardly ever bought by the labourers." We may thus see what the phrase "with meat" means. It is an occasional bit of bacon only; this is what Mr. Hutchinson means by meat forming a regular portion of the diet of the poorest paid class of labour fifty years ago.

While printing in full the answers from several other counties in the appendix, I may state that there are no doubt differences of counties, bacon being more regularly part of the labourer's diet in the north and east than in the south and west, including Wales. But butcher meat or fresh meat is not referred to specifically in more than a few instances out of the nine hundred as forming a part of the labourer's diet, and in all cases it is spoken of as an occasional luxury. The references to meat generally are more numerous, but the inference of course is that pork or bacon is meant, especially when the statements from neighbouring parishes are compared. (See Appendix F.) There can be no question that the answers altogether, which can easily be found in the blue book, are very far indeed from supporting the statement that 50 per cent. of English agricultural labourers fifty years ago had meat as a regular portion of their diet. At most a much smaller percentage had bacon, and usually the bacon was occasional only.

Aggregate Income and Classification Fifty Years ago and now.

To illustrate the whole subject farther, I propose now to make a rough comparison between the incomes of the different classes of the people fifty years ago and at the present time, which will not only show that working class incomes on the average have increased 100 per cent. or thereabouts, but in what way the improvement has arisen. What has been said already as to the non-agricultural classes having increased more than the agricultural, which have in fact declined, and as to population in Great Britain having increased while in Ireland it has diminished, has helped to give us some ideas on the subject; but the problem may be attacked directly. In my former paper I avoided any attempt of this sort. Assuming a certain gross income at the present time, and working backwards on the assumption that the working class

improvement had been 100 per cent. in fifty years, I gave a short table illustrative of my general idea as to what had occurred in the fifty years; but I attempted no comparison between a period fifty years ago and the present time, using the data actually in existence fifty years ago and comparing them with present data.

In making such a comparison now I do not propose any original work. Such a work seems hardly necessary. Short of a national census of incomes, the data for any statement of aggregate incomes must always be imperfect; while, notwithstanding necessary imperfections, I have always found such estimates as those of Mr. Dudley Baxter and Mr. Leone Levi, who have studied the subject, and made a good use of the materials they found, sufficient for any practical discussions. What I propose now to do is rather to point out how the figures which others have compiled are adapted to the present purpose, and how little cause there is to doubt the broad conclusions to be arrived at, although the detail is in many respects imperfect.

To begin with the present time, Mr. Dudley Baxter, in his estimate of the national income in 1867, arrived at the general conclusion that there were 13,720,000 persons in the United Kingdom, out of about 30 millions, with independent incomes; of whom 1,162,000 were assessed to the income tax; 1,497,000 belonged to the middle and upper classes, but had incomes of less than 100*l.* year; and 10,961,000 belonged to what he called the "manual labour class." The total income of all these classes he made out to be 814 million pounds, and the income of the manual labour class only, which is by no means to be identified or confounded with that of the working classes in the economic sense of the word, 325 million pounds.

Mr. Leone Levi about the same time, dealing with the "working classes" only, with a class that is corresponding nearly to the "manual labour" class of Mr. Dudley Baxter, dealt with numbers that were much the same, viz., 11 millions, and gave them an income of 418 million pounds. So far as I can judge, the result arrived at by Mr. Leone Levi is better justified than that of Mr. Dudley Baxter, and the detail of the calculation is at any rate set out with greater clearness. The main differences are apparently to be accounted for in two ways, apart from the different averages of wages applied to the number of wage-earners.* (1.) Mr. Levi allows four weeks idle time in the year, and Mr. Dudley Baxter deducts in most cases 20 per cent. from the total of fifty-two weeks for out of work, sick, and paupers;

* Some of these differences are important enough. For instance, dealing with domestic servants, Mr. Leone Levi calculates that the average wage is 35*l.* per annum, and Mr. Dudley Baxter makes it 32*l.* 10*s.* for women and 23*l.* for girls.

and (2.) Mr. Dudley Baxter omits from the reckoning a certain number of foremen and overlookers who are included, as far as I can judge, in Mr. Levi's figures. The two differences stated would account, I think, for more than half the difference between Mr. Dudley Baxter and Mr. Levi.

The result is that if we take Mr. Dudley Baxter's figures generally, but substitute Mr. Levi's as regards the manual labour class, we should get even a better estimate, I think, for the aggregate income of the country twenty years ago than that Mr. Dudley Baxter gave. The total in round figures might have been put at 900 instead of 800 millions. I propose to start from about this basis in stating a figure for the aggregate income of the nation at the present time in the form which Mr. Dudley Baxter adopted.

To Mr. Dudley Baxter's figures thus amended we have now to add, first of all, one-fifth for the increase of population, and next a certain proportion for the average increase of earnings per head. Dealing with his figures in this way, and rearranging his figures so as to distinguish Great Britain and Ireland, we get the following table :—

Income of the United Kingdom in 1883, *based on Mr. Dudley Baxter's Estimate in* 1867 *as amended above, with an Addition of about One-Fifth for Increase of Population, and about One-Tenth to the Income per Head of Classes not in Income Tax Returns, distinguishing also between Agricultural and other Incomes.*

	Persons.	Income.		
		Agricultural.	Non-Agricultural.	Total.
I. Great Britain.	Mlns.	Mlns. £	Mlns. £	Mlns. £
Income tax incomes	1·4	90	486	576*
Upper and middle classes below income tax	1·5	23	84	107
Manual labour class	11·6	70	445	515
Total	14·5	183	1,015	1,198
II. Ireland.				
Income tax incomes	0·1	10	16	26*
Upper and middle classes below income tax	0·3	7	4	11
Manual labour class	1·6	20	15	35
Total	2·0	37†	35	72
Grand total	16·6	220	1,050	1,270

* Only the net income from Schedule B is here included, the difference between gross and net under Schedule B being carried over to the income of upper and middle classes not included in income tax returns.

† I believe the figures should be really somewhat larger. But it will be understood that the table does not pretend to accuracy of detail. I have simply followed the plan described in the heading, so as to obtain general figures good enough for the present discussion.

Of course I do not put forward this figure as anything very exact. What I should like to point out is that to a large extent it is based on actual figures, those of the income tax returns, while as regards the other figures the addition per head to those which Mr. Dudley Baxter and Mr. Levi gave nearly twenty years ago is, as a rule, only 10 per cent. The average increase per head according to Mr. Levi's calculation is more than this, and I have not used his figure simply because I found Mr. Baxter's arrangement more convenient for the present purpose. I am quite satisfied, looking at many details I have before me, that the average increase of wages between 1867 and a date two or three years ago cannot have been less than 10 per cent.*

The question then is how to make up a corresponding table for a period fifty years ago. The task is not so difficult as it seems, for one very good reason. Fifty years ago the income of the nation was in proportion much more largely agricultural than it is now, while the total income from agriculture is ascertainable with more or less exactness. It is in fact possible, if we can arrive at a correct estimate of the agricultural income, to state, with the help of the income tax returns for 1843 for Great Britain, and 1854 for Ireland, very nearly three-fourths of the aggregate income of the country, making an estimate only for the remaining fourth or thereabouts. I have drawn up the following table :—

* In the table I made use of in my former paper, I assumed the figure of 1,200 millions as the income of the people of the United Kingdom. I am satisfied, having looked more into the details since, that I could not have properly constructed a table like the present with any less figure than 1,270 millions, which is Mr. Levi's figure. I have a strong impression indeed that a much larger figure might be taken, the figure of 445 millions as the income of the non-agricultural manual labour class in Great Britain, giving an average per head very little more than what is allowed for the agricultural manual labour class. The total numbers of the manual labour class, following Mr. Dudley Baxter's calculation, are 13,200,000, which is 1,000,000 more than Mr. Levi gives, although both authorities were substantially agreed for 1867. The figures are so large that the difference in the average income per head is not material.

Income of the United Kingdom in 1835-40, *based on Income Tax Returns for* 1843, *Estimate of Value of Agricultural Produce, and Estimates of Agricultural Wages, and other Data.*

	Persons.	Income.		
		Agricultural.	Non-Agricultural.	Total.
I. Great Britain.	Mlns.	Mlns. £	Mlns. £	Mlns. £
Income tax incomes	1·0	63	165	228
Upper and middle classes below income tax	1·0	20	62	82
Manual labour classes	5·5	42	80	122
Total	7·5	125	307	432
II. Ireland.				
Income tax incomes	0·1	12	10	22
Upper and middle classes below income tax	0·3	8	4	12
Manual labour class	3·5	34	15	49
Total	3·9	54	29	83
Grand total	11·4	179	336	515

Comparing this table with the similar table for the present time on p. 68, it is evident at once that the inferences drawn from the increase of many different money wages throughout the country, and from the obvious changes in the composition of the mass of population in fifty years, as explained in my former paper and in the earlier part of the present paper, are fully confirmed. According to this new and independent statement, the income of the manual labour classes per head has increased on the average much more than 100 per cent.

	Numbers.	Income.	Income per Head.
	Mlns.	Mlns. £	£
Manual labour class at present	13·2	550	41⅔
,, fifty years ago	9·0	171	19

This is even more than anything I ventured to estimate before.

It is also evident how it is that the improvement in the position of our working classes is so great as compared with fifty years ago. The changes I referred to in the earlier part of this paper have obviously occurred. While the population of Ireland fifty years ago was one-third of the total, it is now only one-eighth or thereabouts. While the agricultural income fifty years ago was nearly two-fifths of the total, it is now only one-sixth. While the manual labour class has grown from 9 millions to 13 millions, or over

40 per cent. in numbers, the increase in Great Britain is from $5\frac{1}{2}$ to $11\frac{1}{2}$ millions, or about double, and in Ireland there is a decrease from $3\frac{1}{2}$ to little over $1\frac{1}{2}$ millions. While the agricultural income with numbers diminishing has improved greatly, the income from other sources has improved even more, and the whole increase of population is sustained by it.

The only doubt about these figures, I think, will be whether they fully represent the extent of the change that has taken place. They only show an average improvement of 70 per cent. in the money wages per head of the non-agricultural classes in Great Britain, comparing the average fifty years ago with the average at the present time. But this improvement implies that on the average labour in the United Kingdom has improved over 100 per cent.; because the non-agricultural labour of Great Britain, which was the highest paid fifty years ago, has increased to a disproportionate extent. It has increased enormously in numbers, while agricultural labourers in Great Britain have rather declined, and labour in Ireland, where wages were still lower than in Great Britain, has enormously diminished.

It will be urged perhaps that what the working classes in Great Britain have to do with is their own condition. If the non-agricultural classes are only 70 per cent. better off in money wages, it will be urged that they have not so much to boast of. For reasons already given I doubt if this percentage represents the whole improvement in the case of the artisan classes, especially if we take into account the reduction of hours and such changes as have been made by the abolition of the truck system and the like improvements; but admitting it to be the maximum improvement in their case, it is really most essential to keep in mind that in a comparison such as that we are engaged upon, we are not comparing merely the artisan of the present day with the artisan of fifty years ago, but to a large extent we are comparing classes who are non-artisans with the agricultural labourers, whether in Great Britain or Ireland, from whom they are really descended. If the descendant of an Ulster peasant or farmer is now earning 25*s.* a week or thereabouts while employed in the lowest form of skilled labour in Great Britain, we have to compare him not merely with the similar labourer fifty years ago who was earning 12*s.* to 15*s.* a week, but with the still lower paid labourer of Ireland who was earning at the outside 8*s.* per week.

Astounding as it may seem at first, therefore, it is not really so astounding to find that the position of the wage-earner in the United Kingdom has, on the average, improved not merely 100 but over 100 per cent. in the last fifty years as far as money wages are concerned.

It would of course be a cause for dissatisfaction if nothing more had been done in the last fifty years than to elevate the masses of the community to a level rather higher than that of the lowest paid non-agricultural labourer fifty years ago. The very general averages we have been dealing with, however, do not bring out fully the internal changes which have been occurring in the artisan classes, or the fact that numbers have been passing over into the classes of income tax payers, or into the upper and middle classes just below the income tax limit, that these classes in turn have been increasing in rather larger numbers than the community as a whole. In this connection the figures I referred to earlier in this paper are specially important. The classes whose improvement must have caused the increase of assessments under Schedule D in England between 1843 and the present time, must be the artisans and lower middle class with incomes under 100*l.*; those classes, in other words, just below the income tax limit. I may refer moreover to the undoubted fact which appears from the most recent census returns, that the commercial class and professional class, which include clerks, doctors, teachers, and others, belonging to the middle and upper classes, have increased more rapidly than the increase of the general population. The figures are unusually difficult of comparison, but the following may, I believe, be accepted as a correct approximation to the facts in England:—

Statement showing the Increase of the Professional and Commercial Classes in England between 1851 *and* 1881.*

Year.	Professional.	Commercial.
1851	357,000	529,000
'61	482,000	623,000
'71	684,000	815,000
'81	647,000	980,000

It is thus evident that along with the substitution of artisan classes for rude labourers, the proportion to the whole community of the higher paid artisans and of professional workers and clerks, who are economically members of the working classes just as much as the manual labour classes themselves, has been greatly increasing. It would have been a miracle if with all the increase of machinery and development of artistic skill which has been going on, any other change had taken place. A general improvement of the masses, without a relative increase of the numbers receiving high rates of remuneration, appears to be a contradiction in terms.

* For details see Appendix G.

Before passing from these figures, it will be interesting to compare in a more complete form than was possible when I gave my former paper, the increase of the income of the last fifty years which belongs to capital, and the increase which belongs to labour. Using and expanding the table given in my former address (see p. 619 of the Statistical Society's *Journal* for 1883), and incorporating some of the above figures, I have compiled the following table:—

Table showing the Proportion of the Increase of Income in the last Fifty Years belonging to Capital and to Labour respectively.

	1843.	Present Time.	Increase.	
			Amount.	Per Cent.
	Mlns.	Mlns.	Mlns.	
(1.) Capitalist classes from capital	190	400	210	125
(2.) „ "working" income in income tax returns	154	320	166	100
(3.) Working income of upper and middle classes below income tax limit				
(4.) Manual labour class	171	550	379	200
	515	1,270	755	—

These figures of course make no pretence to exactness. The lines of division are by no means clear, and there is an especial difficulty in the matter, which I have had no time to investigate, occasioned by the alteration ten years ago in the minimum limit of the income tax. But for our present purpose exactness is not required; the more the subject is looked into the more it becomes clear that the greater part of the increased money earnings of the community of this country in the last fifty years has gone to labour and not to capital. The chief effect of the improvement has been to raise enormously in the scale of living the masses of the community.

It will be observed that in this table, as I have often done throughout the paper, I have spoken of the "working classes" in the economic sense, as being a much larger class than the "working classes" as popularly understood. It is expedient, I believe, with reference to many socialist doctrines, to emphasise the facts that the working classes in the larger sense do include many more people than the manual labour classes; that their work is equally an essential contribution to the whole production of the community; and that in any case, the figures we have been dealing with being those of income, we must not commit the mistake of supposing that there is any one class which in any special sense

produces that income. In the working income included in the income tax returns as forming part of the income of the upper and lower middle classes not included in these returns, you have such incomes as those of artists, authors, actors and actresses, singers, and many more who are as much workers as any member of the artisan or labouring classes. Their incomes go to swell the large total of over 1,200 millions with which we have been dealing. When we are speaking of the working classes of the community we should include every man who works. In this sense there is certainly no doubt that it is not the capitalist who has reaped most from the economic improvement of the last fifty years. As the result of the excessive competition which the multiplication of capital has produced, capitalists all round have *per force* to be content with a lower rate of profit. Hence while capital has increased, the income from capital has not increased in proportion. The increase of earnings goes exclusively, or almost exclusively, to the "working classes."

Summary and Conclusion.

It will be convenient now to sum up the conclusions which have been arrived at.

The contentions of my paper two years ago were that the working classes of the United Kingdom had enjoyed a great improvement in their money wages in the last fifty years, an improvement roughly estimated at 50 to 100 per cent.; that the hours of labour had been shortened in the same period 20 per cent.; that along with this improvement there had been a general fall, or at any rate no increase, in the prices of the principal articles of general consumption, with the exception of rent and meat, where the increase still left to the labourer a large margin for increased miscellaneous expenditure; that meat in particular was not an article of general consumption by the masses of the community fifty years ago as it has since become; that the condition of the masses had in fact improved vastly, as was shown by the diminished rate of mortality, the increased consumption per head of tea, sugar, and the like articles, the extension of popular education, the diminution of crime and pauperism, and the increase of savings bank deposits, as well as of other forms of saving among the masses; and that finally neither the amount of capital nor the return upon it, and especially not the return upon capital, had increased so much as the income of the workers of the country from their work.

In the present paper these conclusions have been additionally supported.

1. It has been shown, in opposition to various objections to the

former paper, that the estimate of 50 to 100 per cent. as the average improvement of the money wages of the working classes in fifty years, is not only not excessive but under the mark. Reasons have been urged for attaching special importance, in comparisons of money wages fifty years ago and at the present time, to the instances of maximum increase, where a given employment at a given place is compared with the same employment at an earlier period. It has farther been pointed out, on a broad survey of the facts, that the composition of the people of the United Kingdom is entirely changed from what it was fifty years ago; that whereas fifty years ago one-third of the working masses were Irish peasants earning a doubtful 4*s.* a week on the average, and the agricultural population of Great Britain constituted another third of the total, this class likewise earning much smaller incomes than the third class, consisting of the non-agricultural workers of Great Britain, yet now the Irish labourers are less than one-eighth of the total, the British agricultural labourers are also one-eighth only, and the remaining three-fourths are artisans, and other non-agricultural workers in Great Britain, who constituted fifty years ago only about a third of the whole population. Even if the wages of the different classes had not increased, this change in the composition of the mass would itself imply an average improvement. An improvement of 50 per cent. in the unit of each class would imply of itself, allowing for the change in the relative numbers of the classes, an average improvement of nearly 100 per cent.

2. The probability of a great average improvement is farther shown by the magnitude of the improvement in the case of the units of the worst paid labour, where there has been a diminution in numbers. In Ireland the improvement in the wages or earnings of small farmers and labourers is at least 100 per cent., the doubtful average 4*s.* of fifty years ago having been converted into a much less doubtful 8*s.*, or its equivalent, at the present time. In Scotland and Wales the average improvement in agricultural labour has equally been about 100 per cent., from 9*s.* in the former case to 18*s.*, and from 7*s.* 6*d.* in the latter case to 15*s.* In England the changes are not quite so extreme, but from 8*s.* to 13*s.*, and from 10*s.* to 16*s.* are not uncommon figures, fully justifying Sir James Caird's conclusion, which I quoted in my former paper, as to there having been an improvement of 60 per cent.

3. The worst paid labour in Great Britain of a non-agricultural kind has equally undergone improvement. In the Metropolis, and the leading manufacturing towns, the rise ranges from 15*s.* to 25*s.*, or about 70 per cent., but in other parts of the country, as in Glasgow, there are cases of an advance of 100 per cent., the

improvement in wages generally appearing to be greater in places like Glasgow than in the leading towns of England.

4. There has also been a great increase in the number of income tax assessments, implying an improvement of the artisan and other classes just below the income tax limit.

5. There has been a simultaneous improvement in France, Germany, and other countries. The improvement in the United Kingdom is not an isolated fact.

6. There is accordingly nothing to be astonished at in an average improvement of the money wages of "working classes" in the last fifty years amounting to 100 per cent. When the facts are considered, such an improvement is, in reality, antecedently probable.

7. The condition of the masses fifty years ago was in truth deplorable, as is shown by numerous extracts from the writings of Thomas Carlyle, Lord Beaconsfield, Mrs. Gaskell, and Mr. Thornton, and by references to numerous blue books. Even the manufacturing operatives of England, the most advanced class of all, were liable to frequent and great privations, through the complete suspension of work, and had at times to live on very "short "commons."

8. With regard to the consumption of meat by the agricultural classes of England, as to which the statements made in my former paper were specially challenged, farther inquiry has shown that the ground of the challenge was singularly erroneous. A table in Mr. Porter's "Progress of the Nation," which was quoted by an objector to prove that 50 per cent. of the agricultural classes of England had meat as a regular portion of their diet half a century ago, is found to show, when the data are referred to, that much fewer than 50 per cent. had "bacon" as an *occasional* portion of their diet; and that there is hardly once mention of any other meat as a portion of the agricultural labourer's diet among the statements from which the table is compiled.

9. Finally it is shown, on a comparison of incomes in the aggregate, that while the total income of the country fifty years ago was about 500 millions only, of which two-fifths were derived from agriculture, the present income, on the authority of Mr. Dudley Baxter and Mr. Leone Levi, may be placed at about 1,270 millions, of which only one-sixth is from agriculture. At the same time the agricultural labourer is better off, because, while his numbers have diminished, the net income from agriculture, and his share of that income, have both increased. Farther, the working masses of Great Britain have more than doubled their number in the interval, simultaneously with a vast diminution in Ireland, whose aggregate income remains much the same, though with a diminished

number to share it. Hence the increase of income in the fifty years has been mainly among the higher paid classes, and the final result is that whereas fifty years ago the working masses of the United Kingdom, amounting to 9 millions, earned in all about 171 millions or 19*l.* per head, the working masses, now amounting to over 13 millions, earn about 550 millions or nearly 42*l.* per head, an increase of much more than 100 per cent.

10. When the increase of earnings from labour and capital is compared, it is found that the increase from capital is from 190 to 400 millions only, or about 100 per cent.; the increase from the "working" of the upper and middle classes is from 154 to 320 millions, or about 100 per cent.; and the increase of the income of the manual labour classes is from 171 to 550 millions, or over 200 per cent. In amount the increase due to capital is about 210 millions; to labour of the upper and middle classes 166 millions; and to labour of the manual labour classes 379 millions, a total increase of 755 millions.

The general conclusion for all the facts is, that what has happened to the working classes in the last fifty years is not so much what may properly be called an improvement, as a revolution of the most remarkable description. The new possibilities implied in changes which in fifty years have substituted for millions of people in the United Kingdom who were constantly on the brink of starvation, and who suffered untold privations, new millions of artisans and fairly well-paid labourers, ought indeed to excite the hopes of philanthropists and public men. From being a dependent class without future and hope, the masses of working men have in fact got into a position from which they may effectually advance to almost any degree of civilisation. Every agency, political and other, should be made use of by themselves and others to promote and extend the improvement. But the working men have the game in their own hands. Education and thrift, which they can achieve for themselves, will, if necessary, do all that remains to be done. Whatever else can be done will be done all the more easily if education and thrift are practised. I am not speaking now theoretically, I know from experience, and from intimate acquaintance with working men themselves, using the words "working men" this time in a popular sense, what can be done on very small means. It will be a shame to English working men if they cannot with comparatively ample means raise themselves to the standard of education which Scotch peasants have long since been able to reach with what, until recent years, were very narrow means.

In conclusion, let me point out that in the near future there is a very serious difficulty impending; the difficulty in fact is

already upon us. Since I wrote two years ago prices have farther declined, which would seem to give working men even a greater advantage than they had then. But this decline is due to causes, as I believe, which necessarily involve a fall in money wages and profits. Wages and profits must to some extent be adjusted to the changed prices. Hence the present time I have spoken of now has been rather that of two years ago, when my former paper was written, than the actual present. If I were to take account of the most recent changes in prices, I should also have to take account of the most recent changes in wages, which are all in a state of transition. What I have to suggest to all concerned is that the fall of prices, considering the length to which it has gone, is a phenomenon which working men should carefully study in their own interest, and that they should be prepared to some extent for a reduction in money wages. What concerns them is not "money" wages, but "real" wages. It is quite possible that in a period when money wages are falling, along with all other money values, their real condition may improve, because the fall in money wages is less than the fall in the money prices of the principal commodities which they consume. The question is not one which working men or any other class can avoid.

APPENDIX A.

Rates of Wages Paid to Unskilled Labour (Non-Agricultural) Fifty Years ago and at the Present time.

I. *Labourers' Wages*, 1830-40.

[From Tables of Revenue, Population, &c.]

		Per Week.
Bricklayer's labourers, Manchester, 1832	Part 2, p. 101	12*s.*
Spademen, 1832	,, ,,	10*s.* to 15*s.*
Building labourers, Glasgow, 1831	,, p. 107	9*s.*
Porters in shops, &c., Glasgow, 1831	,, ,,	13*s.*
Labourers, Londonderry, 1829, 1832	Part 3, p. 400	8*s.*
,, London Dock Company, 1833	,, p. 410	15*s.*
Stocking makers, Leicester, 1833.....	,, p. 413	8*s.* 3*d.**
Labourers in worsted mill, Bradford, 1833	,, p. 418	15*s.*
,, manufactories, Newcastle, 1833....	,, p. 423	15*s.*

Note.—Maximum artisan wage 30*s.*; common, 20*s.* or less.
* Calculated weekly earnings.

II. *Rates of Wages Paid to Labourers (Men) in the following Places and Employments in* 1880.

[From the "Miscellaneous Statistics of the United Kingdom."]

Name of Place.	Employment.	Rates of Wages per Week.	Hours of Labour per Week.
		s. *d.*	
London	Building trades, generally	5¾*d.* per hour	47 to 52½
,, ...	Ditto, when scaffolding or hoisting	6¼*d.* ,,	,,
,, ...	Coach building.....	21*s.* to 26*s.*	—
,, ...	Gasworks	25 –	—
,, ...	Paper making	21 –	60
,, ...	Rope and twine spinning	18*s.* to 23*s.*	54
,, ...	Soap making, soap house labourers	22 –	—
,, ...	,, and candle making, generally	22 –	—
,, ...	Sugar refining	25 –	59
Folkestone	Building trades, generally	4*d.* to 5*d.* per hour	51 to 56½
Portsmouth	Ditto	4½*d.* per hour	53½ to 56½
,, ...	Ditto, when scaffolding or hoisting	5*d.* ,,	,,
Bristol.....	Building trades, generally	4½*d.* ,,	48 to 54
,, ...	Ditto, when scaffolding or hoisting	5*d.* ,,	,,
,, ...	Gasworks	3*s.* per day	10 per day
,, ...	Soap making, generally	19 –	64
,, ...	Ditto, soap house labourers	21 –	63
,, ...	Sugar refining	17 –	59½
,, ...	Candle making	21 –	64

II. *Rates of Wages Paid to Labourers (Men) in* 1880—*Contd.*

Name of Place.	Employment.	Rates of Wages per Week.	Hours of Labour per Week.
		s. *d.*	
Cardiff	Building trades, generally	4*d.* to 5*d.* per hour	50½ to 54
,,	Copper smelting	21 –	60
Stroud and Dist.	Woollen manufactures	14 6	56
,,	Shoddy and flock manufacture	14 6	,,
Birmingham	Building trades, generally	5¾*d.* per hour	47¾ to 54
,,	Gasworks	18*s.* to 21*s.*	54
,,	Ditto, retort labourers	21*s.* to 27*s.*	—
,,	Ditto, pipe layers and gasfitters' labourers	21 –	,,
,,	Machinery, manufacture of	18 –	,,
,,	Metal and brass work	18*s.* to 21*s.*	,,
,,	Screwmaking, header's labourers	24 –	,,
,,	Ditto, fitters' labourers	18 6	,,
,,	Railway carriage building	18 –	,,
Wolverhampton	Building Trades, generally	4½*d.* per hour	50½ to 54
,,	Ditto, when scaffolding or hoisting	5*d.* ,,	,,
,,	Iron works, blast furnaces	18 –	10½ per day
,,	Ditto, puddling	17 –	55
,,	Ditto, bar rolling	17 –	55
,,	Ditto, hoop ,,	17 –	55
North Staffordshire District	Coal mining, bank labourers	20 –	54
,,	Earthenware and porcelain	16 –	—
Leicester	Building trades, generally	4½*d.* to 6*d.* per hour	50 to 56½
,,	Ditto, when scaffolding or hoisting	6½*d.* per hour	,,
,,	Hosiery manufacture	18 –	53½
,,	Ditto, dyers' labourers	14 –	56
Nottingham	Building trades, generally	5½*d.* per hour	42 to 54
,,	Ditto, when scaffolding or hoisting	6*d.* to 6½*d.* per hour	,,
,,	Iron foundries	19 6	54
Northampton	Building trades, generally	20 –	,,
,,	Ditto, when scaffolding or hoisting	22 6	,,
Lincoln	Building trades, generally	17 10	53½
,,	Ditto, when scaffolding or hoisting	20 –	,,
Warrington	Building trades, generally	19 –	50 to 55
,,	Ditto, when scaffolding or hoisting	25 –	,,
Liverpool	Building trades, generally	5¼*d.* per hour	45 to 55
,,	Candle making	21 –	54
,,	Chemical works	18 –	54
,,	Coach building	20 –	56½
,,	Gasworks	21 –	55½
,,	Rope and twine spinning	20 –	60
,,	Shipbuilding, iron	21 –	54
,,	Soap making, soap house labourers	20 –	63

II. *Rates of Wages Paid to Labourers (Men) in* 1880—*Contd.*

Name of Place.	Employment.	Rates of Wages per Week.	Hours of Labour per Week.
		s. *d.*	
Bolton	Building trades, generally	5¼*d.* to 6*d.* per hour	—
Manchester	Ditto	5¼*d.* per hour	47 to 54½
,,	Chemical works	19 6	60
,,	Cotton printing and dyeing	19 –	—
,,	Gasworks	20 –	60
,,	Iron foundries	17 10	54
,,	Machinery, manufacture of	16*s.* 6*d.* to 18*s.*	,,
,,	Paper hangings, manufacture of	18 6	60
Sheffield	Building trades, generally	5*d.* per hour	47 to 49½
,,	Iron foundries	19 –	9 per day
,,	Machinery, manufacture of	20 –	54
Hull	Seed crushing	20 –	—
,,	Shipbuilding, iron, fitters' labourers	19 –	54
,,	Ditto, painters' labourers	21 –	,,
,,	Ditto, general ,,	20 –	,,
Leeds	Iron foundries	17 6	,,
Huddersfield	Woollen manufactures	20 –	56
Dewsbury	Ditto	20 –	54
Bradford	Building trades, generally	20 6	49½
,,	Ditto, when scaffolding or hoisting	21 9	,,
Cleveland Dist.	Iron works, blast furnaces	18 6	9 to 12 p. day
Middlesborough	Machinery, manufacture of	22 –	66
Darlington	Building trades, generally	5*d.* per hour	45 to 49½
South Shields	Ditto	21 –	50
Edinburgh	Ditto	5*d.* per hour	45 to 51
,,	Bookbinding	23 6	54
,,	Gasworks	20 –	—
,,	Paper making	15 –	10 per day
Glasgow	Building trades, generally	4*d.* to 5*d.* per hour	43 to 51
,,	Coal mining, bank labourers	17 6	57
,,	Cotton printing	16 –	56
,,	Gasworks	3*s.* 2*d.* per day	10 per day
,,	Iron foundries	16 6	53½
,,	Machinery, manufacture of	17 –	54
,,	Shipbuilding, iron	16 3	,,
,,	Ditto, joiners' labourers	17 –	,,
,,	Ditto, riggers' ,,	17 –	,,
,,	Sugar refining	21 –	60
Greenock	Machinery, manufacture of	17 –	54
,,	Rope and twine spinning	18 –	56½
,,	Shipbuilding, iron	Time 16 6 Piece 21 6	54
,,	Sugar refining	15*s.* to 20*s.*	60

II. *Rates of Wages Paid to Labourers (Men) in* 1880—*Contd.*

Name of Place.	Employment.	Rates of Wages per Week.	Hours of Labour per Week.
		s. *d.*	
Dundee	Jute spinning	14 6	56
,,	Linen and flax manufactures	18 6	,,
,,	Machinery, manufacture of	16 –	54
,,	Rope and twine spinning	18 –	56
,,	Shipbuilding, iron	16 –	54
Dublin	Coach building	16 –	58
,,	Gasworks	18 –	55½

APPENDIX B.

Comparison of Agricultural Wages Fifty Years ago and at the date of the recent Royal Commission on Agricultural Depression.

[From Mr. Purdy's papers on agricultural wages, vols. xxiv and xxv of the Statistical Society's *Journal*, as to the period fifty years ago; and from the reports of the Assistant Commissioners to the Royal Commission on Agricultural Depression as to the recent period.]

(*Note.*—The wages given in both cases are those of ordinary labourers, and what is stated is the current weekly wage, the rules as to allowances being much the same apparently in both cases, with the exception that in the later period the wage is more usually exclusive of a free cottage and allotment.)

	Fifty Years ago.	Present Time.		Fifty Years ago.	Present Time.
	s. *d.*	*s.* *d.*		*s.* *d.*	*s.* *d.*
Surrey	10 6	16 –	Durham, Northumberland, Westmoreland, and Cumberland	12 –	18 –
Sussex	10 7	14 –			
Kent	12 –	16 –			
Hertford, Northampton, and Bedford	9/– to 9/6	13 –*	Monmouth	10 6	12 –
			Wales—		
Essex, Suffolk, Norfolk	10 4	13 6*	Anglesea	7 6	13 6
			Brecon		15 –
Wilts	8 –	12 –	Carnarvon		15 –
Dorset	7 6	12 6	Denbigh		14 6
Devon	8 –	13 6	Flint		15 –
Somerset	8 8	13 –	Glamorgan		15 –
			Montgomery		14 –
Gloucester	9 –	12 6	Pembroke		13 6
Hereford	8 –	14 –			
Salop	9 –	14 6	Scotland—		
Stafford	12 –	16 –	Northern	8 1	15/– to 18/–
Warwick	10 –	16 –	Midland	9 9	
			Southern	9 5	16/6 ,, 18/–‡
Lincoln, Nottingham, Derby	12 –	13 6*	Ireland—		
			Ulster	5 1	8 –§
Cheshire	13 –†	15 6	Connaught	3 9	
			Leinster	4 8½	
York (W., E., and N. Riding)	12 –	17 6	Munster	4 –	

* In these cases I have found it very difficult to get a figure for the present time from the reports of the Royal Commission.

† In this case it is to be noted that the 13*s.* given for 1837 is higher than the figure given by Mr. Purdy for 1861, which was 11*s.* 8*d.*

‡ Wigtown exceptionally, 13*s.* 6*d.* only.

§ Mr. Purdy gives 7*s.* 1*d.* for the year 1860. The average must now be over 8*s.*

APPENDIX C.

I. *Statements as to Wages of Workmen and Workwomen in France.*

[From M. Yves Guyot's "Principles of Social Economy," English translation, pp. 154 and 156.]

Average Daily Wages of Builders' Workmen employed on Charitable Institutions in Paris.

[After M. de Foville, "Economiste Français," 5th February, 1876.]

	1824-33.	1834-43.	1844-53.	1854.	1855.
	frs.	frs.	frs.	frs.	frs.
Masons	2·00	2·07	2·15	2·26	2·34
Carpenters	2·15	2·21	2·32	2·44	2·52
Joiners	2·16	2·22	2·30	2·41	2·49
Locksmiths	2·26	2·32	2·42	2·55	2·64

Average Daily Wages in the Building Trade in the Chief Departmental Towns, Paris not included.

[After M. de Foville, *ubi sup.*]

	1853.	1857.	1871.	1872.
	frs.	frs.	frs.	frs.
50 per cent. masons	2·07	2·40	3·06	3·07
50 „ carpenters	2·20	2·53	3·34	3·43
47 „ joiners	2·02	2·31	2·85	2·98
39 „ locksmiths	2·16	2·44	3·02	3·01

Average Daily Wages of Workmen in the Building Trade in Paris.

	1805.	1810.	1853.	1866.	1875.	Increase.
	frs.	frs.	frs.	frs.	frs.	Per cnt.
Navvies	2·25	2·25	3·00	4·00	4·00	77
Stonemasons	3·35	3·50	5·00	5·50	5·50	69
Bricklayers	3·25	4·00	5·25	6·00	6·25	92
Masons	3·25	3·25	4·25	5·25	5·50	69
Rough wallers	2·50	2·50	3·00	4·25	5·00	100
Labourers	1·70	1·90	2·50	3·35	3·50	105
Carpenters	3·00	3·25	5·00	6·00	6·00	100
Joiners	3·50	3·25	4·00	4·50	5·00	42
Smiths	5·00	5·00	5·00	6·50	7·00	40
Fitters	3·75	4·00	4·25	4·60	5·25	40
Glaziers	3·00	—	3·75	5·00	5·25	75
Plumbers	4·25	—	4·00	5·50	6·00	41
Slaters	5·00	—	5·00	6·00	6·00	20
Painters	4·25	—	4·00	5·00	6·00	41
Locksmiths	—	—	4·00	5·00	5·00	—

Average Daily Wages of Women in France.

Trades.	In 1844.*	In 1853.†	In 1860.‡	In 1872.	Increase.
	frs.	frs.	frs.	frs.	Per cnt.
Shirt hands	0·90	1·50	1·75	2·00	122
Staymakers	1·00	1·50	2·00	2·00	100
Dressmakers	1·25	1·75	2·00	2·00	60
Embroiderers	1·50	2·00	2·00	3·00	100
Lacemakers	1·50	2·30	2·50	3·00	100
Closers	1·50	2·50	2·00	3·00	100
Artificial flower makers	1·50	2·50	2·25	3·00	100
Laundresses	2·00	2·50	2·50	3·00	50
Trouser makers §	1·75	2·50	2·75	4·00	128
Average	1·43	2·12	2·20	2·78	94

* Figures quoted by M. Louis Blanc in his "Organisation du Travail." They may be a little within the truth.

† Statistics published by the Ministry of Agriculture and Commerce.

‡ Statistics of Parisian industries in 1860, according to the inquiry made by the Chamber of Commerce.

§ "L'Economiste Français," 15th March, 1876, "Variations des Prix en "France," de Foville.

II. *Statements as to Wages of Workmen in Germany.*

[From M. Yves Guyot's "Principles of Social Economy," English translation, p. 165.]

Wages in the Spinning Trade at Mulhouse from 1835 *to* 1880.

	1835.	1845.	1855.	1865.	1880.	Per Cent.
	frs.	frs.	frs.	frs.	frs.	
Overlookers	2·91	3·50	4·37	4·58	6·25	115
Enginemen	1·88	2·30	3·17	2·88	3·50	86
Oilers and greasers	1·50	1·80	1·58	2·50	3·10	107
Strap makers	1·50	1·83	2·42	2·50	4·00	160
Scutch hands (women)	0·96	1·04	1·06	1·33	1·70	77
Card menders	1·33	1·42	2·83	2·22	2·70	103
„ cleaners	—	—	1·79	1·96	2·35	?
Women carders	1·87	1·00	1·01	1·31	1·60	81
Throstlers	1·50	1·50	1·59	1·78	2·40	60
Mule spinners	0·75	2·60	3·75	4·12	—	143
Self-acting mule spinners	—	—	2·50	3·52	4·25	143
Piecers	0·65	0·75	1·25	1·42	2·30	256
Doffers (children)	—	—	0·92	1·08	1·60	?

In a silk ribbon factory at Guebwiller, the increase during the interval 1848-80 was from 15 to 77 per cent.,* thus:—

* "Economiste Francais," 16th October, 1880, p. 474; "Les Salaires dans "l'Industrie Manufacturière," by Charles Grad.

	In 1848.	In 1880.
	frs. frs.	frs. frs.
Weavers (men)	2·09 to 3·30	2·10 to 4·25
„ (women)	—	2·00 „ 3·80
„ (children apprentices)	—	1·20 „ 2·25
Warpers (women)	1·50 „ 2·50	1·90 „ 3·00
Fluters („)	0·50 „ 0·80	1·25 „ 2·55
Finishers-off (women)	0·40 „ 0·70	0·66 „ 1·60
Winders (women)	0·75 „ 1·50	1·50 „ 2·35
Folders	1·00 „ 1·25	1·70 „ 3·05
Dyers	1·50 „ 2·50	—
Overlookers	2·00 „ 4·50	—

APPENDIX D.

List of Parliamentary Reports, &c., dealing with the Condition of the Working Classes Fifty Years ago.

Publications.	Subject.
Report from Committee on Manufactures, &c., 1833, vol. vi.	Statement of *weekly earnings and food* for family of six persons.
Report from Commissioners of Poor Laws, 1834, vol. xxxix.	Summary table of answers to *Q.* 14.—"Could a family subsist on their earnings, and on what food?"
	List of persons from whom communications have been received as to wages and subsistence of foreign labourers.
Report from Commissioners of Poor Laws, Part I, 1834, vol. xxx.	Answers relating to county of Berks.
	„ Kent.
Reports from Committees, II, 1810	Committee on Petition of Weavers.
„ Committees on Emigration, 1826-27	Wages (highest and lowest) and food of operative weavers.
Reports from Commission on Factories, 1833, vol. xx.	Earnings and living. Statement of, of framework knitters (stocking makers).
	Families annually relieved at Stockport.
	Wages of female labour in cotton mills at Manchester.
	Weekly earnings of males and females in forty-three cotton mills in Manchester.
Reports from Committees on Poor Laws (12. Part I), 1837-38, vol. xviii.	Average weekly and annual income of a family of six persons.
	Average annual income of agricultural labourers.
Reports from Committees, 1830, vol. x.	Manufacturers' employment. Weekly earnings of working classes.
First Report from Committee on Agriculture, 1836, vol. xiii, Part I	Agriculture.
Report from Committee on Agriculture, 1836, vol. xiii, Part II.	„
Report from Committee on Agriculture, 1837, vol. v.	„

APPENDIX E.

Mr. Porter's Table as to Subsistence of Agricultural Labourers in 1836.

"To the further question, 'Could such a family subsist on the "'aggregate earnings of the father, mother, and children, and if "'so on what food?' answers were returned from 899 parishes to "the effect exhibited in the following table":—

Counties.	Number of Parishes answering.	No (Simply).	Yes (Simply).	Barely, or without Meat.	With Meat.
Bedford	15	1	3	—	11
Berks	24	2	1	2	19
Bucks	27	2	5	5	15
Cambridge	33	2	11	3	17
Chester	12	—	5	2	5
Cornwall	24	—	1	2	21
Cumberland	33	—	7	13	13
Derby	7	—	2	—	5
Devon	18	1	7	1	9
Dorset	16	1	4	2	9
Durham	30	—	6	4	20
Essex	38	9	9	6	14
Gloucester	19	—	7	5	7
Hereford	16	2	1	5	8
Hertford	16	—	2	6	8
Huntingdon	9	2	—	1	6
Kent	43	5	12	2	24
Lancaster	14	—	8	1	5
Leicester	14	—	6	3	5
Lincoln	14	1	5	—	8
Middlesex	2	—	—	—	2
Monmouth	7	—	2	1	4
Norfolk	27	2	8	—	17
Northampton	14	—	2	1	11
Northumberland	18	—	2	—	16
Nottingham	19	—	7	3	11
Oxford	21	—	8	1	10
Rutland	4	—	3	—	1
Salop	19	—	1	—	18
Somerset	22	2	—	6	14
Southampton	43	3	7	6	27
Stafford	12	1	1	—	10
Suffolk	26	4	9	3	10
Surrey	20	—	5	2	13
Sussex	68	21	18	7	22
Warwick	31	1	4	4	22
Westmoreland	17	3	4	5	5
Wilts	24	1	7	4	12
Worcester	18	1	6	2	9
York	65	4	16	17	28
	899	71	212	125	491

APPENDIX F.

Detailed Answers from particular Counties from which previous Table is compiled. BEDFORD.

Name of Place and of Respondent.	Answers.
Blunham-cum-Muggerhanger— J. H. B. Mountain, rector and J.P.	Certainly; upon coarse wheaten bread, potatoes, pork, butter, tea and sugar, and beer
Bromham— J. J. Goodall, vicar	Bare subsistence on bread, potatoes, and pork
Caddington— H. B. Morris, farmer	The family can subsist comfortably on these earnings; they have bread, pork, cheese, and butter every day, and generally a fresh meat dinner on Sunday
Cople— J. Clayton, churchwarden	With these earnings and the present price of provisions they can subsist; their food is generally good wheaten bread, potatoes, and some meat
Kempston— G. O. Fenwicke, vicar and J.P.	With prudence, the family could have meat once a day. Pickled pork is universally eaten, as being the cheapest and most serviceable meat
Lidlington— T. Batchelor	By the example of Ireland, it may be seen that a family can subsist on almost any earnings; for if they cannot get much meat, they can at least obtain bread; and if not wheaten bread, they must descend to rye, barley, oats, or potatoes; but to lay by money in any case seems entirely out of the question
Maulden— T. M. Overman, churchwarden	Yes
Meppershall— J. Webster, B.D., rector	Bread and potatoes, and pork sometimes, are chiefly the food of a poor man; the females live upon tea, sugar, bread, and a little butter; sometimes a little pork
Puddington— Richard L. Orlebar	A family could subsist on these earnings; their food would be meat on Sunday; on other days wheaten bread, vegetables, and some fat pork
Shambrook— J. Gibbard, J.P.	They could subsist on these earnings; food—bread, potatoes, and meat three times a week
Southill-cum-Warden— F. H. Neve, vicar	The family could subsist on these earnings, but their food would only be bread, potatoes, with a bit of pork once, and occasionally twice a week
Turvey— C. L. Higgins, Turvey Abbey	With good management they might. The food is generally bread, potatoes, and occasionally pork
Westoning— T. Pearse, vicar	I believe not
Willington— P. Hunt, LL.D., vicar	Such a family can just subsist on such earnings, presuming the father to be in regular work. Their food—good wheaten bread, meat, and potatoes, with other vegetables when they have little gardens

Detailed Answers from particular Counties. CUMBERLAND—*Contd.*

Name of Place and of Respondent.	Answers.
Aikton— R. Hind and J. Hodgson, overseers	On food generally used by farmers in Cumberland
Alston— J. White, overseer	Many of them are obliged to apply to the parish; and such as do without parochial relief chiefly subsist on potatoes, with a little oatmeal
Arthuret— T. Plenderleath, assistant overseer	I believe they could subsist on these earnings, their food chiefly consisting of potatoes and oatmeal; but they have advantages in procuring potatoes and fuel
Bewcastle— J. Dodgson	They do; chiefly on oatmeal porridge at breakfast, and potatoes with a little dried salt pork or herrings for dinner and supper
Bootle— J. Shaw, J.P. for Cumberland	They do, and are healthy; their food for breakfast and supper would be oatmeal porridge; for dinner, potatoes with generally a little bacon, a head or such offal from the butcher's, or herrings; they also frequently have tea, with a good piece of loaf bread
Bowness— N. Barnes, assistant overseer	Yes; oatmeal porridge twice a day, and wholesome food
Brampton— T. Ramshay, vicar and J.P.	The wife and the four children could not subsist on these earnings without the earnings of the husband also
Burtholme Township (Lanercost Parish)— W. H. Howgill	Yes; but only on oatmeal and potatoes
Caldbeck— W. Robinson, overseer	They must contrive to exist on these earnings, but with the coarsest of food
Cumrew— J. Watson, minister	Many families live on less. The chief food—potatoes, bacon, oatmeal pottage, milk, tea, and barley bread
Dacre— E. W. Hasell	Yes; on coarse wheat or barley and rye bread, and oatmeal porridge with milk; or, if milk could not be had, a little butter or treacle, with perhaps a cup of coffee or tea after it, for breakfast or supper; potatoes with a little bacon, or sometimes fresh meat, for dinner
Nether Denton— J. Topping	Yes, by living upon coarse food
Edenhall— W. Hodgson, overseer	It could subsist on these earnings, on substantial food, but it must be at the same time of the plainest and simplest kind
Farlam— J. Teasdale, assistant overseer	They could; but must use a considerable portion of common food, as potatoes, &c.
Gamblesby Township (Addingham Parish)— J. Jackson, minister	This we cannot answer
Hayton— Anonymous	Yes; on potatoes, oatmeal porridge, tea or coffee, with barley bread
Hesket— T. Dixon	At the present price of produce they might with economy, supposing their food to consist of oatmeal porridge, which is very generally used, barley meal for bread, and bacon and potatoes

Detailed Answers from particular Counties. CUMBERLAND—*Contd.*

Name of Place and of Respondent.	Answers.
Holme Cultram Parish (containing four divisions)— D. Pope, assistant overseer	They may live on it with frugality; on barley bread, which is commonly used here, potatoes, oatmeal porridge, and such like food
Hunsonby and Winskill Township (Addingham Parish)— J. Jackson, minister	This we cannot pretend to answer
Hutton in the Forest— Sir F. F. Vane, Bart.	They do subsist, and are healthy; their food consists of bacon, potatoes, brown bread of barley or rye, oatmeal porridge with milk, or tea
D. Richardson, assistant overseer	Where constant employment can be had, an industrious family lives comfortably and content. Food as above
Irton— S. Lutwidge, J.P.	They can subsist upon oatmeal, potatoes, milk, and occasionally salt herrings, and tea from native herbs
Kirkandrews upon Eden— J. Norman, overseer	I think it could; the food various
Kirkandrews upon Esk (Middle Township)— A. Armstrong, assistant overseer	They could subsist upon the food of the country, chiefly oatmeal, barley meal, potatoes, with milk or small beer, and occasionally butcher's meat, with a little tea or coffee
Kirkland— J. Chapelhow, curate	It may be possible to subsist on these earnings, with vegetable diet chiefly
Kirkoswald Township— C. S. Fetherstonhaugh, J.P. G. G. Lawson, vicar J. Little	Yes, they could, including the father's earnings They can, and several similar families in our towship do subsist upon the father's wages, and pay their rent
Langwathby— R. Powley	They may, on the plainest and cheapest food
Plumbland and neighbourhood— E. Stanley, rector and J.P.	Many families do so subsist; they live principally on hasty-pudding made of oatmeal; also on bacon and potatoes; the women get tea if they possibly can
Ponsonby— E. Stanley, J.P.	Yes; upon oatmeal, potatoes, a little milk, and salt fish. I speak, however, of the neighbourhood, for we have none of this description in this parish
Renwick— J. Watson, assistant overseer	The general food of labourers is brown barley bread, with weak tea or coffee, oatmeal porridge with skimmed milk, potatoes, with a little bacon or other animal food
Great Salkeld— J. Rebanks, overseer	They could subsist on wholesome food with these earnings
Staffield Township— J. Pearson, vestry clerk J. Little and J. Lowthian	They can subsist on the father's wages, on food like that of the rest of the peasantry, their neighbours, and pay their cottage rent
Walton— W. Steele, vestry clerk	They must subsist, and on the lowest priced food: meal, milk, and potatoes, with a little bacon occasionally (butcher's meat, fresh, they cannot obtain), is their general food
Waterhead Township— D. Ferguson, assistant overseer	Yes; but the food must be oatmeal and potatoes

Detailed Answers from particular Counties. CUMBERLAND—*Contd.*

Name of Place and of Respondent.	Answers.
Waverton Quarter, High and Low (Wigton Parish)— C. Ray, churchwarden	They could subsist; their food being chiefly barley bread and potatoes
Wetheral— E. Stanger, P. curate [Answers agreed to at a public meeting]	They do subsist on them; milk, potatoes, oatmeal, barley meal, butter, bacon, and fresh meat occasionally
Wigton, Quarter of Township (Wigton Parish)— J. Studholme, solicitor, chairman of S. Vestry W. Buttery, assistant overseer	Families employed in agriculture generally subsist on their earnings, and their food is bread, oatmeal, pottage, potatoes, cheese, meat, milk, and tea

KENT.

Ash, near Sandwich— G. R. Gleig, minister	I think they could, eating bread and pork, and drinking tea; beer is unfortunately beyond their reach
Ashurst— W. F. Jones, overseer	Subsist well, on bread, cheese, bacon, and sometimes fresh meat
Bapchild— W. Lake, farmer	They could subsist, but not pay rent
Bexley— Rev. E. C. Frith, J.P.	Certainly, and well
Barham— J. Pope, guardian	Supposing the family to consist of the above number, and to receive the pay as above stated, I think they would, with the help of a good garden (which they are supplied with in this parish), live very comfortably, at least in a manner very satisfactory to themselves, and might partake of all the necessaries of life
Boughton Monchelsea— T. Rider, J.P. E. Hodges, assistant overseer	With difficulty, rent being high; the food is chiefly wheaten bread, and occasionally meat
Chalk— W. Brown, J.P.	Yes; on good seconds flour, pork or bacon, cheese and butter, some tea, and occasionally butcher's meat
Chiddingstone— H. Streatfield	Yes, sufficiently well
Chilham— J. B. Wildman, J.P.	Yes; on seconds flour, bread, vegetables, and the cheap parts of beef and bacon
Chislehurst— Viscount Sydney	The families are in the habit of so subsisting; though in this parish there is a good deal of charity; the labourers here are used to eat animal food, and could not do upon oatmeal, &c., as in some places; bacon is their usual food
Chislett— T. Neame, chairman of S. Vestry	If they had the above earnings they could live well
Cobham— W. Lake	They could not
Eastry— Anonymous	Yes; meat once a day, with bread and vegetables, but no beer

Detailed Answers from particular Counties. KENT—*Contd.*

Name of Place and of Respondent.	Answers.
Edenbridge—	
J. Holmden, farmer and assistant overseer under direction of the Vestry	We consider they cannot subsist on their earnings
Egerton—	
T. Betts	Yes; on wheaten bread, cheese, butter, and bacon, &c.
Farningham—	
R. Smith	They may live well with good management
Gillingham—	
S. Baker	Where they have constant employment, and a cottage and garden at a low rent, they can, having generally two hogs for winter store, and an ample supply of potatoes, and every appearance of comfort
Goudhurst—	
S. Johnson, churchwarden; J. Bates, overseer	Barely
G. Miller	The standard of comfort being high with us, the food of a labouring man is almost universally meat and bread, and of the members of his family, good wheaten bread, with butter and cheese
St. Michael, Harbledon—	
J. Sanderson, churchwarden	Bread, meat, and vegetables when employed
Harrietsham—	
N. Murton, churchwarden	Not without parochial assistance occasionally
Hartlip—	
W. Bland, jun., overseer	Certainly; on meat and pork once a day, bread, potatoes, and butter, tea and water
Hawkhurst—	
J. Cobb	Yes; on wholesome food
Higham—	
T. Bentley	Yes, if in regular work; on wheaten bread, potatoes, and other vegetables; meat moderately, cheese, butter, and tea. By economical management these can be had
St. Lawrence (Isle of Thanet)—	
G. Bedford, churchwarden	Yes; having the advantage of cheap fish and potatoes
Lenham—	
C. Parkin, vicar	I think they might; on bread, cheese, or butter, tea, and occasionally salt pork
G. Powell, churchwarden	They can buy more food now wheat is about 8*s.* per bushel for 2*s.* 6*d.* than they could for 3*s.* 6*d.* when wheat was about 15*s.*
J. Payne, assistant overseer	I think they could; they could subsist on bread, cheese, bacon, suet puddings, and potatoes
Lewisham—	
G. Southorn and J. Goodwin, overseers	It is conceived the family could subsist, with proper economy, on the ordinary food of such a labourer
Marden—	
P. Le Geyt, vicar and J.P.	Yes; with meat twice a week
St. John, Margate (Isle of Thanet)—	
D. Jarvis, churchwarden	On good substantial food
Milstead—	
J. A. Tylden, Manor House	They could, on bread and cheese, meat occasionally, particularly pickled pork; they mostly keep a pig
Marston—	
J. Poore, rector and J.P.	Hardly possible to answer, from the uncertainty of employment

Detailed Answers from particular Counties. KENT—*Contd.*

Name of Place and of Respondent.	Answers.
Preston, near Faversham— G. Hilton	I conceive it might, principally on bread, cheese, and butter, with occasionally pork and other meat
St. Peter the Apostle (Isle of Thanet)— J. Trecothick	They can while in health; their meat will be chiefly pork
Rodmersham— W. J. Lushington, J.P.	They can; on wheaten bread, meat, bacon, cheese, butter, tea, potatoes, and other vegetables
Rolvenden— R. W. Forbes, J.P.	I think they may, eating bread, butter, and cheese moderately, and a little animal food, pork and bacon, butcher's meat seldom, beer rarely
Speldhurst— W. Hook, assistant overseer	No
Sundridge— G. D'Oyley, rector	Yes, with proper economy; chiefly on bacon, bread, and potatoes
Tenterden— J. Exall, vestry clerk	They cannot
Thurnham— C. Wayth	On very scanty food
Tonbridge— A. Akers, J.P.	Yes; after deducting for rent, wood, soap, candles, &c., they might have 5 gallons of flour, potatoes, butter, tea, sugar, cheese, salt, and pepper; and nearly once a week a dinner of bacon
R. W. Blencowe, J.P.	They could, on a low rate of food
T. Catt, master of the poorhouse	According to the wife's management
Westerham— A. Allan, assistant overseer	Yes; some better than others, according to their care
West Wickham— C. F. Farnely, rector and J.P.	Yes; on bread, and occasionally meat
Wilmington— A. Selby, churchwarden T. Chapman, overseer	They could subsist on these earnings, and on good food
Wye— T. R. Barnes, overseer	I am unable to say
Wrotham— G. Moore	Yes

SUFFOLK.

Barningham— G. Hunt, rector	Not on such food as the labourer ought to live on
Great Bealings— E. Moore, J.P.	Chiefly on bread, butter, cheese, potatoes, and tea and sugar; if prudent, a pig or two may be reared in the year, affording meat two or three times a week
Benhall— R. Brightwell overseer	They could subsist
Blything Hundred— H. N. Pence, J.P.	Certainly; and might occasionally enjoy a piece of meat, dry bread and potatoes being now their only food
Chediston— G. Robinson	I never calculated

Detailed Answers from particular Counties. SUFFOLK—*Contd.*

Name of Place and of Respondent.	Answers.
Clare— W. Territt, LL.D., land proprietor and resident	Constant employment would find them a wretched subsistence, but this is not obtained. Bread and potatoes are their food
Debenham— E. Dow and R. Simpson, churchwardens	We think they could; wheaten bread, cheese, and pork
Earlsoham and surrounding district— J. H. Groome, rector	They might, perhaps; but their food would be barely sufficient, consisting almost entirely of bread, cheese, butter, and tea
Euston (Suffolk) and Potterspury (Northampton)— J. Cooper, land agent	It would supply, with provident habits, all necessary food for health and strength
Farnham— R. Keen, overseer	Yes, if employment could be found regular, agreeable to Questions 12 and 13
St. Peter, Felsham— T. Anderson, Felsham Rectory, whose answers also apply to the Hundreds of Thedwestry and Thingoe	A man in constant work, and a wife, with four children, could subsist on their earnings
Halesworth— J. Carr, assistant overseer	I think they could not subsist, even on the meanest fare
Haveringham Parish and Blything Hundred— A. Collett, rector	They do subsist; their food is wheaten bread, cheese, and butter, tea, no beer, occasionally pork, if the labourer can purchase a pig to rear
Hunston— C. Porcher, Hunston Hall, with the advice of overseer	Yes; on potatoes, bread, vegetables, and probably the pork of their own pig
Kesgrave— R. N. Shawe, J.P.	The family subsist on these earnings; their food is bread, cheese, and pork; beer, which they generally brew themselves; almost all have pigs and a small plot of garden ground
Kettleburgh— G. Turner	Supposing the average to be what I have stated in answer to Query 10, I think they could live upon it on the usual food, bread and cheese, dumplings, pudding, some butter, potatoes, turnips, &c., but very little meat
All Saints, Lawshall— N. Colvill, D.D., rector and J.P.	A family, consisting of a man, his wife, and two children, might subsist on these earnings; bread and potatoes
Laxfield— J. Goodwin, vestry clerk	If the children are taken away at the age of 11 years
Livermere— J. M. Rodwell, overseer and churchwarden	Yes; wheat flour, pork occasionally, and vegetables
Nayland— M. Harrison, curate	They could live on the best wheaten bread at *2s. 6d.* a peck, meat occasionally, tea, and a small quantity of butter and cheese, and potatoes
Pakenham— J. Aldridge, overseer	Yes; and on wholesome, nutritious food
Ringsfield— J. Garden, surveyor, Redisham Hall	The family could subsist on the wages, using meal, and meat once a week. Labourers are bad managers; none, I believe, use meal, and gin and beer are preferred to meat, being more inclined to indulge themselves at the alehouse than enjoy themselves with their families at home

Detailed Answers from particular Counties. SUFFOLK—*Contd.*

Name of Place and of Respondent.	Answers.
Rougham— R. Bevan, J.P.	Many do subsist on this, God only knows how; and out of this much goes to the beer house, which might be laid by
Semer— C. Cooke, rector	Not without assistance
Stanstead— R. Mapleloft, churchwarden and J.P. [Answer refers in general to whole Eastern Division of Suffolk]	The family making these earnings would receive no parochial assistance unless the price of flour was higher than *2s. 9d.* per stone
Stradbrooke— A. Gissing and H. Jeffries, churchwardens	Nothing can be said as to earnings. Fine flour is now used, and to their loss, and not meal as formerly
Stradbrooke and Eastern Division of Suffolk— Lord Stradbrooke [Answer refers in general to whole Eastern Division of Suffolk]	A family of six would live well on *14s.* a week
Great Waldingfield— F. Cresswell, rector	The family would earn *31l. 3s.* a year; if on parish allowance they would have by scale *11s.* weekly, and for the year *28l. 12s.*; *2l. 11s.* is consequently the excess above a bare existence
Walsham le Willows— Z. Brook, assistant overseer	They could not subsist on their earnings
Whatfield— F. Calvert, rector	Every labourer who has a wife and more than three children receives relief for the support of all children above that number
Wickham Market— J. Lewin, churchwarden	A good-managing cottage wife keeps the family with the best wheaten bread, potatoes, some meat, tea, sugar, and many other little necessaries; but a bad manager can hardly provide anything but bread, sometimes short of that, and generally all in rags, while the others are as well clothed as fed
Worlingworth— E. Barlee, clerk and J.P.	With the help of a garden, potatoes, &c., they might; they would rarely taste meat, and, except in harvest time, no beer

APPENDIX G.

Statement showing the Increase of the different Groups of the Census in England and Wales between 1851 *and* 1881 (*see note appended*).

	1851.			1861.		
	Males.	Females.	Total.	Males.	Females.	Total.
I. Professional class	285,440	71,195	356,635	385,345	96,612	481,957
II. Domestic „	3,044,843	6,897,448	9,942,291	3,473,916	7,952,804	11,426,720
III. Commercial „	466,846	61,753	528,599	585,420	38,290	623,710
IV. Agricultural „	1,631,873	452,280	2,084,153	1,631,652	378,802	2,010,454
V. Industrial „	2,871,172	1,359,972	4,231,144	3,262,510	1,565,889	4,828,399
VI. Indefinite and non-productive class ..	481,051	303,736	784,787	437,416	257,568	694,984
Total all persons	8,781,225	9,146,384	17,927,609	9,776,259	10,289,965	20,066,224

	1871.			1881.		
	Males.	Females.	Total.	Males.	Females.	Total.
I. Professional class	486,118	197,984	684,102	450,955	196,120	647,075
II. Domestic „	3,949,029	9,174,703	13,123,732	*258,508	*1,545,302	*1,803,810
III. Commercial „ ...	758,187	57,237	815,424	960,661	19,467	980,128
IV. Agricultural „	1,470,442	373,725	1,844.167	1,318,344	64,840	1,383,184
V. Industrial „ ...	3,615,727	1,657,916	5,273,643	4,795,178	1,578,189	6,373,367
VI. Indefinite and non-productive class ..	779,431	191,767	971,198	*4,856,256	*9,930,619	*14,786,875
Total all persons	11,058,934	11,653,332	22,712,266	12,639,902	13,334,537	25,974,439

* The "Domestic" and "Indefinite" classes are not comparable with previous years.

NOTE *to* APPENDIX G.

The figures in this table are not those actually published in the census returns for the years named. An attempt has been made to obtain figures which can be properly compared with each other. The changes that have been made in the census returns from time to time make a comparison of actual figures impossible.

In the censuses of 1811 and 1821 the persons engaged in the various occupations were enumerated by families and not by individuals, but the subdivisions appear to have been only three, viz., families chiefly employed in agriculture; families chiefly employed in trade, manufacture, or handicraft; and families not included in the two preceding classes. The returns were made by the overseers of the poor, and they seem to have been in the habit of returning miners, road makers, and other labourers who were employed harvesting, as engaged in agriculture, because in the

earlier enumerations no place had been left for such workers amongst the occupied classes. In 1831 a return of the occupations by families and by males of 20 years of age and upwards was obtained. In 1841 the enumerators took each man's description of himself. In 1851 instructions were printed on the schedules sent to the householders, at the same time that elaborate instructions were sent to the enumerators and registrars, and by these means the return of the occupations of the people was believed to have been greatly improved, although it is allowed to have been far from perfect. The instructions issued in 1851 appear to have been followed very generally in the censuses of 1861 and 1871, with of course such improvements as experience had pointed out. The *classification* (of the returns) of 1851 was revised by Dr. Farr for the census of 1861, but very few alterations appear to have been made, although a great deal was written about the classification.

Several alterations were made in the classification used for the census of 1881, of which the following are the chief :—

Persons who described themselves as retired, as well as persons over 60 in workhouses, and all patients in lunatic asylums, were excluded from the occupations in which they had been formerly engaged.

Artisans in Government employment were included under the craft at which they worked in 1881, but as civil servants in 1871.

Persons who returned themselves as in the yeomanry or militia are entered as soldiers.

Beersellers, innkeepers, and others whose business it is to provide board and lodging, were included in the domestic class in 1871, but in the industrial class in 1881 ; and all persons engaged in laundry work are included in the domestic class in 1881, but with makers of dress in 1871.

In 1881 clerks engaged in factories were classed under clerks, but in 1871 they were included with persons engaged in the occupation to which the manufacture carried on in the factory gave rise.

The number of agricultural labourers was probably more accurately ascertained in 1881 than before, because special attention was called to the necessity of defining the particular kind of labour in which the labourer was employed, whereas the term labourer had been used very indefinitely in previous censuses.

In 1881 persons whose occupations were described in general or vague terms as general labourer, artisan, apprentice, &c., were included in the industrial class, whereas in 1871 they were included in the "indefinite and non-productive class."

Discussion *on* Mr. Giffen's Paper.

Mr. W. J. Harris had no doubt that Mr. Giffen was correct in concluding that the rate of wages was higher than it was fifty years ago, but there were certain compensating facts which he had not taken into account. For instance, although the rate of wages might now be nominally higher, yet there were certain advantages in past times which workmen enjoyed in the shape of perquisites, such as a meal given in, or firing, or a certain quantity of beer or cider during working hours, which they did not enjoy at the present time; and moreover, they were not then liable to the same expenses in contributing to various objects which they were now compelled to subscribe to; amongst these he would mention the compulsory education of their children, trades unions, benefit and friendly societies, and the like. Formerly there was no co-operation amongst the labouring classes for the purpose of keeping one another out of the poor house, and that was the reason why at a certain period of their history the poor houses were so lamentably filled with occupants. He was very uncertain whether the total wages earned by a family before 1838 were not as much as they were in many country districts in England at the present time. It was not only the earnings of the young girls, but also the earnings of the young boys, whom the Education Act now compelled to be at school, that in those days assisted the family maintenance. It was very true, as Mr. Giffen stated, that agricultural labour now formed a smaller proportion of the general labour of the country, but every man who earned more in the great cities did so under very great disadvantages. Their lives were not so healthy; they had larger doctor's bills, and their rents were much heavier. And though wages were higher now, they were in many instances only nominally so. Men were not earning as much as their nominal wages indicated. Large numbers were out of work altogether, and immense numbers were working short time. The nominal rate of wages was kept up by trades unionism, and those who were out of work were to a certain extent supported by those who were in work. Present wages were therefore not a fair representation of the real earnings of the people.

Mr. J. S. Jeans was very glad to be able to bear testimony to the value of the paper read by Mr. Giffen. He thought it would have been better if a little more attention had been given to the subject of the effect of the reduction or the lessening of hours of labour on rates of wages. There could be no greater mistake made than to take the mere money payment in any country or occupation as a standard of the well-being of the operative. In England the hours of labour had been reduced concurrently with a considerable increase in the rate of wages to a greater extent perhaps than in any other country. In most other European countries though the

money increase in wages over the last fifty years had perhaps been fully equal to that which had obtained here, they had not materially reduced the hours of labour except where they had made special provision for regulating the hours of children's employment in factories. That was a very important consideration, for if they took for example the cotton trade, they would find that the cost of any given quantity of cotton was made up of certain elements of which wages did not form more than 30 to 35 per cent. In this country cotton mills were run for a very much shorter period per day than in most continental factories, and the result of that was to give the continental manufacturer a very considerable pull over his English rivals, which was being more and more felt, seeing that the average reduction of the hours of labour had added from 15 to 25 per cent. to the nominal increase of wages. He thought Mr. Giffen might have made a little more of the subject of the variation from period to period in the amount of taxation, and the amount that working men had to pay in respect of house rent and other circumstances, as mentioned by Mr. Harris. There could be no doubt that although wheat and many other commodities of life had fallen, there had at the same time been a concurrent increase in many other necessary items of the cost of living. He could not quite agree with Mr. Harris in his remarks as to the course that the wages of agricultural labourers had followed over the last fifty years. If Mr. Harris would refer to the reports of the Agricultural Commission, he would find certain tables given which showed the actual wages paid on large farms for each year over that period, and the wages paid during the last five or six years, were considerably higher than at any former period. He should like to see steps taken by the Government of this country, as in France and other countries, with a view to putting the exact circumstances of the working classes from year to year clearly before the country, for at present there were really no materials upon which a judgment of solid value could be formed with regard to matters of that kind. Mr. Giffen had referred to the rates of wages published in the "Miscellaneous Statistics of the United Kingdom." That work, however, only appeared once in three years, and even when it did appear the data given as to rates of wages left much to be desired. He had frequently consulted it, and found that although the returns given as to wages were no doubt reliable and valuable so far as they went, they lacked uniformity. They found that one year the rates paid to cotton operatives, blacksmiths, gasworks operatives, &c., were given for one town, and in the next year for another, so that a continuous and uniform comparison could not be made. If the Board of Trade would do a little more towards helping in that direction it would be a great advantage.

Professor Leone Levi said the Society was greatly indebted to Mr. Giffen for one of its most valuable papers. He thought that Mr. Giffen in selecting the last fifty years for an investigation on the progress of the working classes, did not mean to fix the starting point exactly at 1835. The question was whether the

working classes within that period where economically better than they were in the previous like period, or were they worse? First of all, were they positively better? One fact was certain, that their earning power was greater, not actually in all cases by the rate of wages, but being paid largely by piece work, by the greater amount of work they were able to produce. Taking their present weekly earnings as compared with what they earned fifty years ago, the increase was actually from 30 to 60 per cent. Secondly, not only did they earn more, but they worked less, for within the last fifty years the Factory Acts had been introduced, which had renduced by 20 per cent. the amount of time given to labour. Then, thirdly, there was no doubt that they were consuming more. They were able with the same amount of money to get a great deal more food and clothing than they could years ago. The prices of most articles of food and drink were certainly less, and although rents and meat were dearer, there was a considerable economy on the whole. On the other hand, the expenditure of the working classes now included items which were not required before: education, recreation, travelling, and the like. Again, working men enjoyed a higher status than they did fifty years ago, and with that higher status there was an increasing responsibility and an increasing expenditure; if therefore the rise in their income was not in all cases equivalent to the increased responsibilities, they might be in some cases worse, but in the majority of cases they were a great deal better. Taking them as a whole, his impression was that the labouring classes were much more elevated in character, intellectually, socially, and politically, than ever they were before. There was greater equality in the classes of the population, and they could scarcely find a difference between the great mass of the labouring classes and the lower middle or even the higher middle class. The houses of the working classes were better furnished, a larger proportion of them belonged to the men themselves, and the health of their children was better; they had a larger amount of money in the savings banks, and he would also add, they were, on the whole, more thrifty and careful. Mr. Giffen had abundantly proved that within the last fifty years or thereabouts, the labouring classes had immensely improved their position.

Mr. Benjamin Jones said he should have been very glad if Mr. Giffen's picture was a true one, but he did not think it was. He did not think that his arguments or facts, if they were facts, went far to prove the conclusions that Mr. Giffen arrived at in his paper two years ago, and which he had now repeated. He had explained his reasons for taking the period of fifty years, but why did not he keep to it? In trying to verify some of his figures, he (Mr. Jones) could not come to the conclusion that Mr. Giffen had taken all his figures with that strict attention to the year 1833 that he might have done. It was not that the figures were unobtainable, because on reference to the books mentioned by Mr. Giffen, he found that they contained figures somewhat at variance with the figures given in the paper. For instance, in the case of carpenters, he had taken the figures with reference to

Manchester and Glasgow, but omitted London. Mr. Porter in his work gave not only Manchester and Glasgow, but London, or at any rate Greenwich Hospital, and showed that there the difference in the rate of wages was only 6*s.* 10½*d.* as against 10*s.* and 12*s.* in the north. No doubt, as Mr. Giffen stated, there had been a tendency to equalise wages throughout the country, owing to the greater facilities for locomotion, but he had not taken sufficient notice of that fact in reckoning the percentages of increase. If he were to compare London, he would find that the increase in wages had been nothing like so great as in the cases he had quoted. Fifty years ago carpenters received weekly wages probably all the year round; now the wages were hourly, and a man could be dismissed at a moment's notice when the hour's work was up, and therefore, although they might reckon so many hours a week for the man to earn 39*s.* 4½*d.*, it was a very rare thing for carpenters to earn full money. They had been told that artisans got better house accommodation for the extra rent they paid, but he thought the general testimony would be that in London, or in any of the large towns, that was not the case. Fifty years ago London was small, and a man could walk to his work; but now a carpenter wherever he lived had more or less throughout the year to take the train to get to his work, or else he had to be always on the move, which would entail great expense. Taking these things into consideration, it would be found that a great deal of the advance mentioned by Mr. Giffen ended in smoke. London compositors were mentioned by Porter as receiving in 1833 for book work 36*s.* a week, and for twenty years before that; but at the present time the wages for London compositors for book work was still 36*s.* a week, the difference was simply in the hours they worked; and against that they had the disadvantage of either living a good way from their work, and losing time running backwards and forwards, or on the other hand of paying very much higher rents. Mr. Giffen had said that the wages of children in Bradford was now 11*s.* 6*d.* a week, as compared with 4*s.* 5*d.* fifty years ago, or an increase of 160 per cent.; he ought also to have stated that at that time the children had to go to work as soon as they could crawl; but now owing to the action of the elementary schools, children were not allowed to work until they were considerably older, and it was not what might be called a scientific statistical method to compare the earnings of mere babes of fifty years ago with the earnings of older children at the present time. Then another fact had been overlooked. In counting up the earnings they must bring into account everything that came into the family, whether through the baby or the poor laws; for what difference did it make to the working man, as far as money was concerned in those days, whether he got 6*s.* for his own labour, and 1*s.* for one child, and 1*s.* for another child, and 6*s.* from the poor house, or whether he got 14*s.* for his own labour? There was only the same income coming into the family, and there was the same income to be spent. A still more serious point in connection with Mr. Giffen's statistics was this. In his address two years ago he gave the wages of seamen in sailing ships in 1850, and compared them with the

wages of seamen in steam ships in 1883, that showed a very fair increase of from 25 to 70 per cent.; but why should able seamen in sailing vessels be compared with able seamen in steam vessels? If he had taken the able seamen's wages in sailing vessels in 1883, it would have made this difference, that while, in 1850 they varied from 40*s.* to 50*s.*, in 1883 they were 60*s.* in five cases, and 65*s.* in the others; whereas Mr. Giffen put them at from 65*s.* to 77*s.* 6*d.* That reduced the increase by somewhere about one half. Then came another extraordinary fact, that the same number of men had to man double the tonnage, and therefore they had to do a great deal more work, and he had not yet heard that the nine hours' system had been applied to their seamen. And the most extraordinary fact still remained, viz., that Porter gives the wages of able seamen in 1833 as 60*s.* per month, or just the same in five cases out of six as in 1883. Looking at all the facts, he could not come to the conclusion that the working classes were twice as well off as they were fifty years ago. He was quite willing to agree that they were better off, but nothing like what had been stated. Twenty or 25 per cent. was the extreme, as far as he could get to know; but at the same time he should be very glad to know that Mr. Giffen's figures could be substantiated.

Major Craigie said he agreed that they ought in considering this question of the growth of wages, to consider also the growth of the entire income of the country, of which in the aggregate those wages formed so large a part. Now there was one column of both of the tables of total income employed in Mr. Giffen's able paper, to contrast the year 1883 with 1843, with which he ventured to find fault. That was the column headed "agricultural income." He could not quite follow how it was that the income tax income of the agricultural classes in Great Britain was either at the present time entered at 90 millions, or in 1843 at 63 millions. Major Craigie then entered into a long examination of the question of agricultural income, especially Schedule B, criticising Mr. Dudley Baxter's figures, and concluding by saying that, speaking of course very roughly, he would on these grounds be disposed to take the present total income of the classes engaged in the ownership, occupation, and tillage of the land at nearer 150 millions than 220.

Mr. David Chadwick said he took great interest in Mr. Giffen's excellent paper, having himself in 1859 read a paper before the Society upon the subject, at the request of the late Mr. Newmarch. Mr. Giffen had not put forward quite as prominently as he might have done the fact, that while the working classes had undoubtedly benefited to a very large extent by an increase of wages, and by a reduction in the hours of labour, and a reduction in the price of food generally, they had on the other hand suffered materially from increased house rents. The actual rent of a working man's house in many of the manufacturing districts and in London had nearly doubled in the last fifty years. Many of the points mentioned by Mr. Jones might be more fully considered. When he ascertained and collated the wages in two hundred trades for the

period of twenty years from 1839 to 1859, and came to consider the manner in which the workmen spent their wages in each of those periods, he found that it was necessary to ascertain not the wholesale prices, but the retail prices which the workman had to pay for the articles of food and clothing which he purchased.

Mr. Stephen Bourne said, valuable as the paper was, it would have been far more beneficial if it had shown the progressive movement through the fifty years, for it was more important to know how the case stood five years ago as compared with the present moment, that we might predicate what it was likely to be five years hence. The whole history of economics showed that the condition of the country had varied most essentially of late years, and in all plans for the future it was more important to look at the progress that had been going on than at the stages of two distant periods. What was wanted was not comparisons as to specific rates of wages, so much as the general result of the proportion which actually existed between the wages and their purchasing power, and between the whole expenditure and the actual earnings. With regard to expenditure he had no doubt the working classes were in an infinitely better position than they were fifty years ago, and that in point of fact the thriving members of the community were the better class of the artisans and wage earners of the present day. They had no doubt a very large expenditure to incur; it might be called artificial, but still the amount of their earnings was the result of that artificial expenditure which they or others of their class were led into. Increased economy or thrift, such as they no doubt would wish to see practised throughout the whole community, would result in an over production of goods that might more than neutralise any benefit which the individuals would receive. The real truth of the condition of the country was this: they wanted to utilise its vacant spaces elsewhere, and to be able to use the produce of their labour at home as it was used abroad.

Mr. Rowland Hamilton said allusion had been made of aids to wages in the shape of allowances at harvest time and perquisites of different kinds. He had not found any reason to believe that such irregular additions to wages were greater now than in former times. He demurred to the assumption that the reduction in the hours of labour was also a reduction of the productive power of the labourer. He had certainly found some active and intelligent managers of labour, who were convinced that the amount of work that they got in their short hours was equal in efficiency and quantity to that which was obtained by the longer hours of the continent.

Mr. William Miller suggested that the debate should be adjourned. This was the most interesting paper he had ever heard read to the Society, and he was sure nothing would give them greater pleasure than to spend another evening in its discussion.

Mr. R. Giffen said he should rather demur to that suggestion, as it would be difficult to give another evening to the subject. As far as the criticisms had gone, he might say to begin with he agreed very much with what Mr. Bourne had said, that it would be very desirable to give particulars as to intermediate periods, and to show the progress from period to period. They must however do one thing at a time. He had done the most that he could do under the conditions imposed on him by other engagements, and if some gentleman would take the trouble to do as Mr. Bourne suggested, he would be the most happy to congratulate him on his labours. With reference to what Major Craigie had said, no doubt if Mr. Dudley Baxter was in fault, having followed his plan, there would be some mistake in what he (Mr. Giffen) had now done, but that would not much affect anything that he had placed before them. He should be quite content to take the figures upon Mr. Baxter's responsibility, but for the present purpose the comparison that he made was not affected by Major Craigie's criticism, which would not alter any of the main conclusions at which he had arrived. The conclusions they were dealing with were so large, that any correction which could be induced by a minor criticism of that kind would not materially affect the broad conclusions that had been reached. He agreed with Mr. Jeans that the rates of wages which had been published in the "Miscellaneous Statistics" should be improved, but he believed that as far as they went these statistics of wages were the best that at present existed. Great care was taken to give the number of hours which the workmen laboured in each case, and care was also taken as far as possible to show what the percentage of labourers was at each rate of wages—a matter very much neglected in many of the statistics that he had seen. Of course he was not responsible for the fact that they were only published once every three years, because he had done what he could to get many of these imperfections removed, and if he were not successful, all he could say was that he was not responsible. He should like very much indeed if public opinion would make it necessary that fuller and more particular accounts of wages should be published than were published in those records. Coming to Mr. Jones, who had dealt more with the previous paper read two years ago than the present one, he would point out that a great deal of what Mr. Jones had said did not apply to the kind of comparisons which he was instituting. Mr. Jones's criticism was entirely confined to the comparison of given employments, but what the paper stated was that one of the things they had to take into account in a comparison of that kind was, that the people at the higher rate of wages had increased at a greater rate than the people at the lower rates, and it followed that if the rate of wage for each class had not improved so very much, yet that would imply a much greater improvement for the whole mass of the people, just because the proportion of the people at the lower rates had been diminishing. Mr. Jones's objection to his figures did not apply, because, as he explained, he confined himself to a particular record, selected quite impartially. It was always extremely important to compare similar things with similar things, so that it

should not be possible for any one to say that selections were made from a wide field to suit a particular case. He took what he could from that particular field, and did the best he could with the comparison. With reference to the omission of Greenwich Hospital building wages fifty years ago, he should be very glad indeed if Mr. Jones, or any workman's union, would find out from any authority what the real builder's wages in London were fifty years ago, and compare them with similar records at the present time. But what he had before him was that the Greenwich Hospital wages were not the same things, as far as he could judge, as the wages in the London building trade, which he was able to get from the "Miscellaneous Statistics," at the present time, and it would not have been a proper comparison to take Greenwich Hospital wages fifty years ago and place them beside builders' wages obtained in another way at the present time. Of course even if it should come out that the increase of wages was very little in particular trades, what they had to remember was that London had been growing disproportionately to the rest of the kingdom, and that the mere fact of such a great and disproportionate increase in London would prove that there was a very large increase in builder's wages generally, because the wages in London were so much higher than in the rest of the country. With regard to compositors, they were not in the records he had used, and therefore did not come into the comparison which he was able to make. He should be very glad if a real comparison of compositors' wages for a long series of years were to be published. Mr. Jones himself did not appear to be quite candid in his references. He referred specially to the book trade, but he said nothing of the newspaper trade, which in London at least was very important, if not more important than the book trade. He was not at all sure whether, if he was to compare newspaper wages now with those fifty years ago, he would not find a very different state of things from what Mr. Jones had described. He was told that at the present moment there were very few compositors in London earning less than from 4*l.* to 4*l.* 10*s.* a week in the newspaper offices. Objection had been raised to the comparison of the wages of seamen in sailing vessels fifty years ago with the wages of seamen in steamers now. The obvious reason for the comparison was that the best seamen now were in steamers and not in sailing ships. The number of sailing ships was so much decreasing, that it would be quite unfair to compare the first class seamen of fifty years ago, who were in the first class sailing ships, with seamen who were now to some extent in an inferior class of sailing ships, and omit altogether the same class employed in the steamers. It seemed to him that to make a fair comparison of seamen's wages, they must compare first class ships of fifty years ago with first class ships now, and these were now mainly steamers and not sailing ships. With regard to the children, Mr. Jones said the comparison was unfair, that the children fifty years ago included babes, and these babes had been excluded by the new Act. As far as he could judge, the tendency to employ women and children was rather increasing than otherwise, and although the children

were not employed at so early an age as formerly, there were more of them employed, and as they commenced at a much later period they were much more fit, and contributed more to the family. With reference to house accommodation and rent, he dealt so fully with that in the previous paper that he need not go into it again. The evidence seemed very conclusive, taking the country all over, that the chief cause of the increase of house rent must have been the improvement of the houses and of the accommodation. They might be able to show in the centre of London that there was some disadvantage in that respect, but there was still great improvement, and the working man had more to spend than he had before.

The President said he was sure whatever difference of opinion there might be with regard to any point in Mr. Giffen's paper, there was a universal consensus of thanks to him for having presented so valuable a paper to the Society.

Suicides *in* England *and* Wales *in* Relation *to* Age, Sex, Season, *and* Occupation.

By William Ogle, Esq., M.A., M.D., F.R.C.P., &c.

[Read before the Statistical Society, 16th February, 1886. The President, Sir Rawson W. Rawson, K.C.M.G., C.B., in the Chair.]

CONTENTS:

	PAGE		PAGE
I.—Amount of Suicide	101	II.—Method of Suicide	118

I propose in the following paper to deal with the statistics of suicide in England and Wales. The subject is by no means a new one,* and indeed I had occasion myself to handle it to a certain extent some few years ago. I propose, however, on the present occasion to increase very widely the numerical basis of observation, and also more especially I propose to include in my inquiry a branch of the subject which has scarcely yet obtained more than cursory attention, namely, the relation of suicide to occupation.

For convenience the paper will be divided into two parts, in one of which the amount, and in the other the method, of suicide will be considered; and in both parts, whether dealing with amount or method, the subject will be considered in relation to age, sex, and occupation. Some remarks will also be made upon the relation of suicide to season.

I.—*Amount of Suicide.*

In the course of the twenty-six years 1858-83 the deaths of no fewer than 42,630 persons, a number equivalent to the entire population of a considerable town, such for instance as Cheltenham or Reading, were registered in England and Wales as having been caused by suicide. This number, moreover, was doubtlessly very far below the true figure, for those deaths of course alone are entered in our registers as suicidal, which have been declared to be

* Morselli in his well known treatise gives some tables relating to suicide in England and Wales. Thus there is a table (p. 217) giving the suicide-rates per million living for each sex at successive age-periods; and another table (p. 69) giving the monthly proportion of suicides in London. But the former table is based on the returns of only ten years (1861-70), and the latter on those of only two (1836-37).

such by a coroner's jury; while, as we are all aware, what with the precautions for concealment often taken by the deceased themselves, and what with the kindly reticence of friends, and the sympathetic connivance of coroners and juries, a very considerable number of deaths are ascribed to accident, or are returned under the open heading of "found dead," which were in reality cases of self-destruction.

There is, however, so far as can be seen, no reason to suppose that the under-statement thus caused will be greater in one sex than in the other, or in some age-periods or some occupations more than in the rest, so that while it must be admitted that our figures under-state the actual rates of suicide, yet they may be accepted as representing with sufficient accuracy the proportional rates in the respective sexes, age-periods, and occupations.

There is perhaps an exception to be made to this general statement. It is not impossible, nor indeed improbable, that the amount of concealment may vary with the social standing, being greater in the upper than in the lower classes of the community; and, if this be so, the suicide-rates of men engaged in the higher professions will be under-stated to a greater extent than those of men engaged in lower industries and callings. This possible cause of error is, however, of but small importance; for, as will be seen hereafter, the suicide-rates of the upper and the professional classes are considerably higher than those of the less educated groups, and consequently any correction that would have to be made for differences in under-statement would in no wise efface the contrast between the educated and the uneducated classes, but would on the contrary increase it.

Suicide-rates in relation to Age.—The suicide-rate in the first ten years of life is 0; for though in the twenty-six years one or two suicides were registered of children between 5 and 10 years of age, they were too few to give a rate of 0·5 per million living, and consequently do not appear in a table where decimals are omitted, and whole numbers only are taken to represent the rates. After the tenth year is passed the suicide-rate reaches whole numbers, and then rises, as is shown in Table I, steadily in each successive age-period, reaching its maximum in the 55—65 years period of life, when, after remaining almost stationary for another decennial period, it again falls. It would appear as though when the expectation of life becomes small the value attached to it becomes greater; or it may be that, before this advanced age is reached, those who are unable to withstand the shock of adversity have been to a considerable extent weeded out, and that those who remain behind are on the average made of harder metal, that does not yield so rapidly to the pressure of despair.

TABLE I.—*Average Annual Suicides in England and Wales at successive Age-Periods per Million Lives*, 1858-83.

Age Period.	Rates per Million.		
	Persons.	Males.	Females.
0—	—	—	—
5—	—	—	—
10—	4	4	3
15—	28	26	30
20—	47	62	34
25—	69	99	42
35—	116	175	62
45—	184	271	103
55—	251	396	119
65—	243	394	113
75—	183	306	85
85 and upwards	116	226	46
All ages	72	104	41

Note.—In these rates decimals are not given, but whole numbers only are taken. Thus, though in the twenty-six years there were four suicides of children between 5 and 10 years of age, two of each sex, there is no rate given for that age-period, as the actual rate was less than 0·5 per million.

Be the explanation of the decrease of suicide at the more advanced ages what it may, it is to be noted that a somewhat similar decrease occurs in the lunacy-rate, as measured by the proportion of persons admitted at each age-period into the asylums and other institutions under the observation of the Lunacy Commissioners. The lunacy-rate, or proportion of patients admitted at each age to the total population of similar ages, rises, like the suicide-rate, in the successive age-periods, until a maximum is reached; and then in the more advanced stages of life again declines. The lunacy-rate, however, presents some differences from the suicide-rate. It reaches its maximum at an earlier period, and its decline afterwards is less regular.

Suicide-rates in relation to Sex.—No less important than age in relation to the amount of suicide is sex. The suicide-rate for males, irrespective of age, in the twenty-six years 1858-83 was 104 annually per million living, while the rate for females, as given in Table I, was only 41. Nor does this represent correctly the full difference; for, as we have already seen, the suicide-rate increases enormously with the advance of age, and among women the proportion of individuals of advanced age is considerably greater than it is among males. In all comparisons between two bodies of persons, be they the inhabitants of two different countries, or persons engaged in different occupations, or, as in

the present case, persons of different sexes, one essential precaution to be taken by any one who aims at accuracy is correction for differences of age-distribution. If the age-distribution of the female population had been the same as the age-distribution of the males, the annual suicide-rate for females would have been 39 per million, and not 41 as in the table. This then is the figure which we must put in comparison with the 104 or male rate; so that for equal numbers living, and having similar age-distribution, the male suicides are to the female suicides in the proportion of 104 to 39, or 267 to 100. Without the correction for age-distribution the proportion would be 254 to 100. The difference in this case is not very great, and may seem unimportant, but it is necessary to insist upon it, because in many other cases, as for instance in the comparison of the death-rates in different occupations, to which we shall come presently, the neglect of this precaution would lead to utterly erroneous conclusions.

The increase of the suicide-rate in the successive age-periods, the attainment of a maximum in the 55—65 years period, the slight decline in the next succeeding period, and the rapid fall at the still more advanced ages, are phenomena common to both sexes (Table I); but with the following difference. The rise in the male rate until a maximum is reached is much more rapid, and the decline afterwards much less rapid, than the corresponding changes in the female rate; so that the differences between the rates in the two sexes are much less marked in the earlier age-periods than later on, as is shown in the following table, in which the female rate at each age-period is taken as 100, and the male rate reduced to the corresponding figure:—

TABLE II.—*Proportion of Male Suicide-Rate to Female Suicide-Rate at successive Age-Periods.*

Age-Period.	Female Rate.	Male Rate.
10—	100	133
15—	100	87
20—	100	182
25—	100	236
35—	100	281
45—	100	263
55—	100	333
65—	100	349
75—	100	360
85—	100	491

A glance at the figures in this table at once shows that the male and female rates diverge more and more widely with the advance of age, but that the regularity of the scale is broken at

two periods, namely in the 15—20 and in the 45—55 years periods, and that in the earlier of these two periods the female rate is actually higher than the male rate. The break in the scale at the 45—55 years period marks the sudden shock given to the female system by the *menopause* or "change of life;" while the exceptional inversion of the male and female rates in the 15—20 years period marks the conversion of the girl into the woman. This age-period, it may be noted, is not only the one and single age-period in which the suicide-rate for females is higher than the rate for males, but is also the only period in which the general death-rate, as shown in the Registrar-general's annual returns, is higher in the former sex, and also is marked, as the census returns for 1881 show, by an exceptionally higher rate of lunacy* for females than for males. That these concomitant features of this age-period, namely the higher suicide-rate, the higher death-rate, and the higher insanity-rate among females, are one and all determined by the establishment of puberty cannot be doubted; but, as regards the suicide-rate, it may also be pointed out that the tendency to suicide increases, as we have seen, with age, and that, though a girl and boy of 15 to 20 years of age may be of precisely the same age, when age is measured by mere lapse of time, yet that physiologically and pathologically the girl is considerably the elder of the two, attaining both her sexual maturity and, as Mr. C. Roberts has shown, her full stature at an earlier date than does the boy.

The suicide-rates in Table I represent of course the chances of committing suicide in the course of a single year; and this chance, as we have seen, increases with each age-period up to almost the end of life. But not so with the total chance of ultimately dying by suicide; for, though the annual risk becomes greater and greater, the expectation of life diminishes in a still greater degree; and thus, after a certain age is reached, the total chance of suicidal end diminishes. Nevertheless the total chance of dying by suicide is much more considerable than would probably be supposed by any one who had not examined the question; few, for instance, would imagine that 1 out of every 119 young men who reach the age of 20 dies ultimately by his own hand. Yet such is the case. Were life insurance societies to insist rigorously upon their right to enforce the stipulation by which a policy becomes forfeited on suicide, the total chance of suicide at each successive year of life would be of some practical importance; and, even as it is, the question is not without interest, and consequently I have prepared the following table, which gives the total chance for each sex at several different stages in life. The

* Exclusive of idiocy or imbecility. *Cf.* "Census Report," 1881, vol iv, p. 67.

chances, be it remembered, are calculated for the entire population; were it possible to calculate them for certain selected occupations, or for the educated classes separately, the chances would be considerably greater.

TABLE III.—*Chances at Different Ages of ultimately Dying by Suicide.*

Precise Age.	Males. One in	Females. One in
At birth	173	428
„ 5 years.....	127	326
„ 10 „	122	316
„ 15 „	120	312
„ 20 „	119	319
„ 25 „	120	326
„ 35 „	123	345
„ 45 „	135	385
„ 55 „	164	520
„ 65 „	259	854
„ 75 „	529	1,815

Suicide-rates in relation to Occupation.—We now come to that part of the subject with which it was the especial object of this inquiry to deal, namely, the influence of occupation upon suicide-rates. This is a branch of the subject which hitherto, owing to lack of the necessary data, has been completely neglected in this country. It is true that, no less than forty-five years ago, Dr. Farr in the third annual report of the Registrar-general made some few cursory remarks upon the different amounts of suicide in different industries; but the material with which he was then able to deal consisted of only 168 suicides of persons of known occupation, and it was of course impossible to draw any trustworthy conclusions from such scanty data. These remarks, however, of Dr. Farr constitute, with the exception of sundry calculations as to the rate of suicide in the army, for which official publications provide the necessary data, the sole literature, so far as I have been able to ascertain, as to the influence of occupation upon suicide-rates in this country.

As however the subject is of considerable social interest, I have thought it worth while to spend a large amount of time and labour in gathering together material for its investigation. With that view I have gone through the death registers of England and Wales for six entire years (1878-83), namely, three years immediately preceding, and three years immediately following on the census of 1881, and have abstracted all the male deaths ascribed to suicide, with the occupation, age, and method employed. This gave me a basis of nearly 9,000 suicides of males with known occupations; and these 9,000 deaths I then tabulated on one of

the same sheets, and with the same rules as to tabulation, as had served for the tabulation of the occupations of the living population in 1881. I could have wished that the basis obtained had been of a still wider extent, and I trust on some future occasion to obtain further material; but the time and labour required for going through the bulky death registers of this country are so great, that six complete years were as much as I could get through.

Having thus got the number of registered suicides in each profession and industry in the six years, and having already the living population in each of them at practically the central point, namely, April, 1881, it was of course a simple thing to calculate the annual suicides per 1,000 living in each occupation. But rates thus obtained would in reality be useless, and, what is worse, perfectly misleading, if used for purposes of comparison between one occupation and another. For, as has been abundantly shown, the liability to suicide depends in an enormous degree on age; and the age-distribution of the males employed differs very greatly indeed in different professions and industries. There are some occupations in which a considerable proportion of the employed are over 65, and an inconsiderable proportion under 25 years of age; while there are others in which the proportions are reversed, and a large number of the workers are under 25, while scarcely any are over 65 years of age. To compare the suicide-rates of such contrasted occupations as these, without any regard to the differences of age-distribution, would clearly be absurd.

How then is the difficulty to be met? There is but one way: and that is to calculate separately the suicide-rate at each age-period for each occupation, and then to apply the rates thus obtained to a standard population, that is to a population with a certain fixed age-distribution. I therefore proceeded to calculate the suicide-rate for certain selected occupations at each age-period, and the results are given in detail in the table appended to this paper.

A glance at that table will, however, at once show that in many of the occupations the numbers of persons employed and the numbers of suicides at the later and at the earlier age-periods are insufficient to yield trustworthy rates; and consequently it became necessary to discard these extreme age-periods, and limit the calculation of comparative rates to the periods of life which lie between the ends of the twenty-fifth and sixty-fifth years of age. This limitation, however, though it reduces the numerical basis, is not without a considerable counterbalancing advantage; for the forty years of life embraced are the years in which the influence of occupation is most strongly felt.

The rates then which I shall now give are the average annual

suicides in 1878-83 of a million males between 25 and 65 years of age, of which million 648,502 were under, and 351,498 were over, 45 years of age; this proportion being taken for a standard as being that which existed among all males, independently of occupation, in England and Wales at the census of 1881.

TABLE IV.—*Average Annual Suicides per Million Living, among Males, from 25 to 65 Years of Age, in different Occupations*, 1878-83.

Reference Number.*	Occupations.	Annual Suicides per Million Living.	Reference Number.*	Occupations.	Annual Suicides per Million Living.
	All males	222	24	Tanner, fellmonger, currier, furrier, saddler, harness and leather goods maker	249
40	Soldier	1,149	8	Miller	239
11	Inn, hotel servant	650	26	Textile factory worker	229
10	Innkeeper, publican, spirit, wine, beer dealer	474	28	Painter, plumber, glazier, locksmith, bellhanger, gasfitter	224
3	Medical practitioner	472	34	Blacksmith	222
13	Chemist, druggist	444	14	Bookseller, stationer, grocer, draper, coal dealer, tobacconist, ironmonger, general shopkeeper	218
2	Barrister, solicitor	408	37	Carter, carrier, haulier	214
15	Butcher, fishmonger, poulterer, greengrocer, fruiterer	407	29	Carpenter, joiner	213
12	Domestic servant	377	30	Sawyer	201
18	Hairdresser, hatter, glover, umbrella, stick maker	364	35	Metal worker	201
16	Cheesemonger, butterman, milkman	353	33	Policeman	201
5	Commercial traveller, broker, agent	346	25	China, earthenware, glass worker	193
20	Cabinet maker, upholsterer, French polisher, carver, gilder, shop fittings maker, undertaker	341	31	Wheelwright, coach, carriage maker	180
6	Commercial and law clerk	329	43	Agricultural, general, road, railway, clay, gravel, sand labourer	177
17	Baker, confectioner	328	27	Mason, bricklayer, builder, tiler, slater, plasterer, whitewasher	175
19	Watchmaker, philosophical instrument maker, jeweller	315	9	Gardener	160
42	Porter, messenger, watchman	314	41	Fisherman	157
36	Coachman, cabman, flyman, stableman, groom	303	39	Quarryman	141
4	Schoolmaster, teacher	290	1	Clergyman, priest, minister	139
7	Farmer, grazier	270	32	Shipwright, shipbuilder	96
21	Printer, bookbinder	262	38	Miner	74
22	Tailor	256			
23	Shoemaker	252			

* The numbers in this column are to facilitate reference to the detailed figures for each occupation in the table appended to this paper.

The occupations in the above list are arranged in the order of the rates, beginning with the highest, and, though it may not be possible to explain the exact position of each individual occupation, the series manifestly presents certain unmistakable features. At

the bottom of the list come, with the single and readily intelligible exception of the clerical profession, occupations that entail severe manual labour, that are mostly carried on in the open air, and by men who are comparatively uneducated; such are miners, quarrymen, shipwrights, labourers of all kinds, gardeners, fishermen, bricklayers, masons, and wheelwrights, in each of which groups the rate is below the average for all males.

At the other and upper end of the list come occupations of a very different kind. They are to a large extent sedentary occupations, or at any rate occupations that involve no serious bodily labour, and comprise, besides the learned professions of law and medicine, a number of callings that notoriously lead to an intemperate mode of life, such as those of soldiers, innkeepers and publicans, with their servants; butchers, fishmongers, and greengrocers, many of whom are in the habit of attending early markets, with the temptation to early "nips" of spirits; domestic servants,* and commercial travellers, brokers, and agents.

Between these two extremes come, in the middle of the series, the town artisans of all kinds, such as printers, tailors, shoemakers, leather workers, factory hands, painters, plumbers, and blacksmiths, as also the great class of shopkeepers.

Such are the general features presented by the list, and considering that the rates have been deduced from only six years' registration, and consequently in some cases upon comparatively small numbers, the outline I have drawn is broken in quite as few places as could reasonably be expected.

I do not propose to enter into a detailed examination of the figures for each of the several occupations, but there are some among them on which it may be well to make some few observations.

Firstly, as regards soldiers, who head the list with an appalling figure, enormously in excess of any other in the whole series. The rate is so high, 1,149 per million, that at first one is inclined to suppose that there must have been something exceptional affecting this group in the six years that form the basis of calculation. But further inquiry does not confirm this expectation. All inquirers at all times have been struck with the excessive liability of soldiers to self-destruction. Thus Mr. Lever, in a paper read before this Society in 1839, called attention to the large proportion of suicides among the dragoons of the United Kingdom, and stated that their suicide-rate at all ages was five times as great as the highest average in civil life; and again in another paper, also read before this Society, by Mr. Millar, in 1874, it was shown that

* It was noted that by far the majority of the suicides of domestic servants were of butlers.

the mean annual suicide-rate among the troops serving in the United Kingdom in the ten years 1862-71 was 339 per million. That was the rate at all ages, and agrees very closely with the rate at all ages as calculated from the figures in the table appended to the present communication, which would be 348 per million. The ages of the soldiers, and of the suicides, are not given by Mr. Millar, and consequently the rate for soldiers between 25 and 65 years of age at the date of his paper cannot be calculated; but as there is so close an agreement between the rates at all ages as given by him, and as given above, we may fairly assume that there would be a similar agreement between the rates at the limited age-period of 25 to 65 years, could such be calculated.

The question why soldiers should be so excessively prone to self-destruction is rather psychological than statistical. Nevertheless some arguments as to the probable causes may be drawn from our table of rates. For when we see that next after soldiers in the list come inn-servants and innkeepers, with publicans and dealers in drink, and consider what are the notorious habits of many soldiers, we cannot but feel that we are justified in ascribing a considerable proportion of their self-destruction to intemperance; and, secondly, when we see the next places in the list occupied by medical practitioners and chemists, we are led to believe, as at any rate a very possible explanation, that some part of the high rate is attributable to the ready access to instruments of destruction which these groups of persons severally possess, the soldier in his musket, the medical man and the chemist in his poison chest. This explanation, which, let me say, was suggested by Dr. Farr in the discussion on Mr. Millar's paper, tallies with the evidence afforded by the methods of self-destruction used by the groups in question; for, as will be shown in the second part of this paper, the soldier destroys himself preferentially with the gun, and the medical man and chemist by poison. The explanation tallies also with the apparently generally accepted belief that the act of suicide is often suggested by the sight of an instrument, the facility for its accomplishment acting as an inducement; a belief which is just now finding practical expression in the erection of a railing on the parapet of the archway bridge at Highgate, from which several persons have precipitated themselves. Independently, moreover, of any direct suggestion of suicide by the sight of an easy method of bringing it about, the ready access to any simple means of self-destruction cannot but come into unhappy operation when there is a sudden impulse to suicide, which might pass away were an interval of time required for preparation. It may also be stated, as corroborating the explanation now under discussion, that, judging from the limited data in my possession, photographers, who have

cyanide of potassium always at hand, and who, as will be hereafter shown, almost exclusively destroy themselves by means of that poison, are extremely prone to self-destruction. My data are too scanty to justify me in putting out an actual rate for this occupation, but I may say that, so far as can be judged from them, the suicide-rate for photographers is even higher than for medical men or chemists.

But if this explanation may account at any rate in part for the frequency of suicide among medical men and chemists, it cannot be called in to account for the position of the legal profession, which occupies the very next place in the list. Probably both lawyers and medical men indulge in more than average degree in the pleasures of the table, while they do not counterbalance the ill effects of such excess by any severe bodily exercise; but we may also assume with much probability that much of the high rates of suicide in these professions is attributable to strain on the nervous system from prolonged mental work and concentrated attention, and to that over-sensitiveness to the ills of life, which is the tax paid in return for the advantages of education.

That suicide is for some reason or other more prevalent among the educated than the uneducated classes is the general belief of all who have dealt with the subject. It may be well therefore to consider how far the statistics of this country support that general impression.

(α.) Firstly, among the occupations in the table of suicide-rates there are four which are certainly carried on by men of higher education than the average, viz., the clerical, legal, medical, and scholastic professions. Two of these have, as we have seen, excessively high suicide-rates; a third, the scholastic profession, has a rate which, though considerably lower than in the two just mentioned, is nevertheless 52 per cent. above the average. The remaining profession with a comparatively high standard of education, viz., the clerical profession, has, it is true, a very low rate; but in this case it may be fairly argued that the effects of education are counterbalanced by special circumstances. After the liberal professions probably the occupations in the list that imply the greatest amount of education are those of commercial travellers, with brokers and agents, and commercial and law clerks. In each of these occupations the suicide-rate is excessively high. On the other hand, the occupations which, from an educational point of view, stand in strongest contrast with the liberal professions, are the various kinds of rough labour, and these, as before noted, are all at the bottom of the list; while farmers, shopkeepers, and skilled artisans, with an intermediate grade of education, occupy as a rule an intermediate position in the suicide table.

(β.) Secondly, the suicide-rate has increased not inconsiderably in recent years. Thus the annual rate as given in Table V for the quinquennium 1861-65 was 65·2 per million; but the rate has risen gradually since that date, and in the last period in the table, 1881-84, had reached 74·3; and this increase in the suicide-rate was accompanied by an increase in the spread of education, as measured by the proportion of persons who at the time of marriage were able to sign their names in the register.

TABLE V.—*Education and Suicide in successive Quinquennia.*

Period.	Annual Suicides per Million.	Percentage of Persons able to Write.
1861-65	65·2	71·7
'66-70	66·4	75·6
'71-75	66·2	78·1
'76-80	73·8	82·6
'81-84	74·3	85·5

(γ.) Thirdly, the suicide-rates appear on the whole to be highest in those counties which contain the largest proportions of educated persons in their populations. This is shown in the following table, which was prepared by me some few years ago for one of the annual reports of the Registrar-general.

TABLE VI.—*Education and Suicide in Counties.*

Counties Grouped by Educational Condition.	Mean Annual Suicides per Million Living.
Counties where as many as 27 per cent. were unable to sign register	57·5
Counties where less than 27 per cent., but more than 17 per cent., were unable to sign register.....	69·2
Counties where less than 17 per cent. were unable to sign register	80·3

It would certainly therefore appear from such statistics as are procurable that in this country suicide is, as generally supposed, more common among the educated than among the illiterate. But whilst this much must be allowed, it must not be necessarily concluded that the increased tendency to suicide is the direct consequence of the education, and of the effects produced by it upon the nervous system. For it must be remembered that higher education means as a rule higher income, and that with higher income comes very commonly higher living, less muscular exercise, and generally a less simple and less healthy mode of life.

Having now discussed the more highly educated professions, I pass on to a group which, especially at the present time, is of much interest, namely farmers and graziers. Their annual suicide-rate, as given in the table, is 270 per million; a rate 22 per cent. above the average, and high when it is remembered that farmers live an out-of-door country life, with a more than average amount of muscular exercise, and no very high standard of education. Doubtlessly there is among farmers a considerable amount of drinking, which may in part account for the comparative frequency of suicide among them. But much at any rate of the excess is attributable to the hard times through which farmers have had to pass in recent years, as the following facts will I think show beyond dispute. The total number of suicides of farmers of all ages in the six years 1878-83 was 488, giving an average of 81·3 annually. But these suicides were distributed most unevenly over the six years; the figures for 1879 and 1880 being 112 and 104 respectively, while in the four other years it only averaged 71, and in no one was over 74. Now these two years, 1879 and 1880, were the very years in which the agricultural distress reached its acutest stage. After a succession of several bad years, the wheat harvest in 1879-80 was, according to Sir John Lawes,* the worst on record since 1816; and the shortness of the yield was not, as had previously been the case in years of bad harvest, made up to the farmer by any rise in price. On the contrary, the prices of all kinds of grain fell considerably.

This concurrence of short crops with low prices is marked conspicuously not only in the suicide totals, but in the bankruptcy returns, from which it appears that the failures of farmers in England and Wales were suddenly nearly doubled in 1879, and that, taking the two years 1879 and 1880 together, the failures were no less than 83 per cent. above the average of the four other years which I have used for calculating suicide-rates. This simultaneous rise in the suicides and in the bankruptcies of farmers, and its association with a sudden fall in the prices of wheat, barley, and oats, is shown in the following table. What is not shown, and what I have been unable to find figures to show, is the amount of crop in each year.

* *Cf.* Brodrick's "English Land and English Landlords," p. 274, who quotes Sir J. Lawes's paper on "The Wheat Crop of 1879" in the Journal of the Bath and West of England Society for 1879.

TABLE VII.—*Suicides and Failures of Farmers,* with Prices of Wheat, Barley, and Oats,* 1878-83.

Year.	Suicides of Farmers.	Failures of Farmers.	Average Prices per Imperial Quarter.					
			Wheat.		Barley.		Oats.	
			s.	*d.*	*s.*	*d.*	*s.*	*d.*
1878	71	626	46	5	40	2	24	4
'79	112	1,196	43	10	34	–	21	9
'80 ...	104	1,097	44	4	33	1	23	1
'81	69	918	45	4	31	11	21	9
'82	74	533	45	1	31	2	21	10
'83	58	422	41	7	31	10	21	5

The facts that have now been given in regard to farmers show how necessary it is to base all calculations as to suicides upon as large a number of years as possible; for otherwise the years taken may be years of exceptional depression in the special industry examined, and depression, as the figures for farmers show, leads, as might be anticipated, to increased suicides. Owing to the inclusion of the two years 1879 and 1880, the suicide-rate ascribed to farmers in Table IV is doubtlessly higher than would be a rate calculated on a longer series of years. If we omit the two exceptional years from the reckoning, and base the calculation simply on the remaining four years, the annual suicide mortality of farmers from 25 to 65 years of age, would be, not 270 as in the table, but only 217 per million, or almost identically the same as that of the great group of shopkeepers.

The low position of this group of shopkeepers in the list is remarkable. Though they lead sedentary lives, mostly in towns, live more freely, and, as a body, are better educated than the artisans, yet their suicide-rate is only 218 per million, and lower than that of almost every group of these latter. The artisan groups themselves present very considerable differences in their suicide-rates, differences which I must confess myself unable to explain satisfactorily, and concerning which I think it better not to speculate, leaving the task to those who are more conversant than myself with the differences presented by different kinds of artisans in regard to wages, education, and habits of life.

Before however quitting the subject of the relation of suicide to occupation, there is a question which requires some notice. Are high and low suicide-rates found to coincide with high and low insanity-rates, or with high and low general death-rates? That this should be so we should expect *à priori*. The connec-

* The failures are taken from the "Economist" of 21st February, 1885, and the prices from the "Statistical Abstract" issued by the Board of Trade.

tion of suicide with insanity is of course obvious, for of insane males no less than 25·9 per cent., according to the official returns,* suffer from suicidal propensity; and short of actual insanity there are many diseases which from their painfulness or their tedium create a disgust with life, and a longing to be quit of it. There are moreover habits of life, such as chronic indulgence in alcoholic excess, and chronic overwork, that lead in common to suicide and to disease. We ought not however to expect the parallelism between the suicide-rates, the insanity-rates, and the general death-rates, in a series of different professions and occupations, to be more than general; for after all it is only about one-quarter of the insane who are suicidally disposed, and the proportion of the sick from other diseases than insanity, who are thereby induced to destroy themselves, must be but small. Still, as before said, we should expect a certain degree of parallelism between the several rates, and we do in fact find that such can be traced.

For a comparison of suicide-rates with insanity-rates, we have the reports of the lunacy commissioners. In their last report (thirty-ninth) they give the average annual admissions into houses for the insane per 10,000 males returned in each occupation at the census of 1881. Unfortunately, however, they have taken no account of differences of age-distribution in the different occupations, and consequently the rates given by them are of very little use for purposes of comparison; for the insanity-rates, like the suicide-rates, increase vastly with age, and the age-distribution differs greatly in different professions and industries. Such very possibly is in part the explanation why clergymen, who have a very low suicide-rate in Table IV, which is corrected for age-distribution, have one of the highest insanity-rates in the commissioners' tables. Nevertheless, neglecting this and some other similar exceptions, the occupations that have been shown to have high suicide-rates have also high insanity-rates in the lunacy reports. If the occupations, which in Table IV are ranged in the order of their suicide-rates, were rearranged in the order of their insanity-rates, barristers and solicitors, medical practitioners, soldiers, commercial travellers, and chemists would head the list; and though innkeepers with publicans and wine-dealers, as also the servants in inns and hotels, would not stand quite so high in the list as they do in Table IV, yet they would occupy a very slightly lower place. At the bottom of the list would come miners, just as in the suicide-table, and not far off from the bottom, though interspersed with some exceptional intruders, would be found the great groups of rough out-of-door workers, labourers of all sorts, masons, brick-

* *Cf.* "Thirty-Ninth Report of Commissioners of Lunacy," Table XXX.

layers, and the like, quarrymen, carters, carriers, and hauliers. On the whole then there is quite as close a parallelism between the two series of rates as could be fairly expected, seeing on what different principles the two sets of rates have been calculated.

As regards any possible parallelism between the suicide-rates and the general death-rates, the only data for instituting a comparison are those which I have recently published in the introduction to the supplement to the Registrar-general's forty-fifth annual report. I have there given the general death-rates of the males between 25 and 65 years of age engaged in a number of selected occupations, with due correction for age-distribution. If now the occupations grouped in Table IV in order of suicide-rates be rearranged in order of general death-rates, it will be found that there are, as might be anticipated, wide divergencies between the two series; but it will also be found that there are some striking points of resemblance between them. In the first place the eight groups that head the suicide series have every one,* with the single exception of lawyers, whose position in the suicide list is accounted for by their high insanity-rate, extremely high general death-rates; they are liable to suicide just as they are liable to other forms of disease. In the second place, of the six occupations that come at the bottom of the suicide list, every one, with the single exception of quarrymen, stands very low down in the general mortality list, and even the exception of quarrymen is explicable to some extent, though not completely, by the fact that the mortality in this occupation is due in a large degree to accident and not to disease. The parallelism then between suicide-rates and general death-rates is at least as close as could reasonably be expected; and we may conclude with much certainty that the same occupations and habits of life as conduce to general unhealthiness conduce also, in general, to self-destruction.

Amount of Suicide in relation to Season.—There are no available data for determining the annual suicide curve for England and Wales. The weekly returns of the Registrar-general give, however, the necessary information as regards London. If these returns be taken for the twenty years 1865-84, and due correction made for the differences of length in the different months, it is found that the amount of suicide increases, though not in corresponding proportions, with the increase of daylight. The proportion is at

* The general death-rate of soldiers was not given in the Decennial supplement, but I have since calculated it from the census returns and the death registers for 1880-82, and found it so excessively high that I have included it above. The comparative mortality figure for soldiers, calculated on the same plan as the figures for the occupations dealt with in the supplement, would be no less than 1,633.

its minimum in December, when the days are shortest; it then rises month by month, with the exception of a slight retrogression in February, till it reaches its maximum in June; when it falls gradually, month by month, with the exception of a very slight pause in October, till it again reaches the minimum in December. The two slight breaks in the otherwise regular rise and fall would very possibly disappear, if the numerical basis were larger; for though the suicides for twenty whole years have been taken as a basis, the actual numbers dealt with are still only small, and therefore liable to casual fluctuation.

The following table shows the monthly distribution of 10,000 suicides, the months having been reduced to periods of equal length:—

TABLE VIII.—*Distribution of Suicides in London by Months of equal length,* per* 10,000 *Suicides,* 1865-84.

January	732	July	905
February	714	August	891
March	840	September	765
April	933	October	772
May	1,003	November	726
June	1,022	December	697

Why the amount of suicides should vary from month to month with the curious cyclical regularity shown in the above table it is difficult to say. The curve is too definite to be simply casual; moreover, a similar annual curve has been found† in the suicides of other large towns than London. It is said that attacks of insanity are more frequent in the hotter than in the colder months. Whether this be so in this country I have been unable to ascertain. But even assuming such to be the case, we should not have made much advance towards a satisfactory explanation; for we should still have to inquire why insanity should thus vary with the successive months. Possibly the explanation may simply be that as the days grow longer, the movement of life, be it for business or for pleasure, becomes more and more active; and that the changes in the amount of suicide correspond to the consequent changes in the amount of mental excitement.

* The Registrar-general's returns are for entire weeks, and as the beginnings and ends of months do not of course coincide, unless exceptionally, with the beginnings and ends of weeks, the suicides for precise monthly periods cannot be ascertained. The twelve successive periods taken above are therefore only approximations to precise months. Thus the four first weeks of the year are taken to represent January, the four next for February, and the five remaining weeks of the first quarter for March, and so also with the three remaining quarters of the year.

† *Cf.* Lisle, "Du Suicide," pp. 37—42.

II.—*Method of Suicide.*

It remains to treat of the methods of suicide. This is rather a subject of curiosity than of any higher interest, and need not therefore occupy us more than a short space.

By far the most common method of suicide (see Table IX) in this country is hanging or strangulation, which accounts for 365 suicides out of 1,000. Next in order come drowning and cut-throat, or other cut or stab, counting respectively for 185 and 184 per 1,000. Then at a long distance follows poison, 99 per 1,000, and still farther behind come gunshot, precipitation from a height, and lying in front of a train, contributing respectively 48, 25, and 19 to the total 1,000.

The order of frequency is doubtlessly determined in the main by the comparative facility of access to the several means or instruments. It is only a limited number of persons that have free access to guns or to poisons; while most persons can easily procure a razor, and a river or pond of sufficient depth can be found in most places at no great distance; but chief of all, and most universally available and independent of locality, is a rope, which thus comes to be the most commonly used instrument of self-destruction.

TABLE IX.—*Suicides from Different Methods, per* 1,000 *Suicides of all kinds,* 1858-83.

Method.	Persons.	Males.	Females.
Hanging or strangulation	365	417	240
Drowning	185	152	264
Cut or stab	184	207	129
Poison	99	79	145
Gunshot	48	67	2
Jump from height*	25	21	36
Railway train*	19	24	8
Otherwise	75	33	176
All methods	1,000	1,000	1,000

* The proportions due to these two causes have been calculated from the returns of ten years only, the figures not being procurable for the whole twenty-six. It has been assumed that the proportion for the whole period was the same as for the ten years.

Method of Suicide in relation to Sex.—The method of suicide, as is shown in Table IX, is influenced very considerably by sex. Men preferentially select hanging, and next to this, though in only half as high a proportion, cut or stab, while drowning in this sex only occupies the third place. Women on the other hand preferentially have recourse to drowning, then to hanging, and prefer poison to cut or stab. Out of 1,000 suicides of each sex, the pro-

portion brought about by poison is almost twice as great for women as for men. Women again, as might be expected, rarely use a gun for self-destruction, only 2 suicides out of 1,000 being so caused, whereas for men the proportion is 67 per 1,000. Jumping from a height is proportionately more common among women; whereas another method, only of late years come into use, but now on the increase, viz., lying down in front of a train, is proportionally more common among men.

Not only do women differ from men in the comparative preference which they display for death by poison, but they also differ from them greatly as regards the poisons of which they make use. Men, who have on the whole freer access than women to a variety of poisonous substances, and are, moreover, more conversant with their respective properties, select with marked preference those poisons that are certain, rapid, and above all painless in their action: opiates, anodynes, and prussic acid accounting for nearly 60 per cent. of their suicides by poison. Among women, on the other hand, these preparations are only used in about 27 per cent. of the cases; while such agents as oxalic acid, arsenic, corrosive sublimate, carbolic acid, vermin killer, strychnia, and phosphorus, which latter are obtained as beetle-paste, or other specifics for keeping the house free from animal pests, are used by them in vastly higher proportion than by men, in spite of the painful character of the symptoms which such drugs produce. These differences are shown in the following table, which is based on the recorded suicides by poisons of stated nature in the twenty years 1863-82:—

TABLE X.—*Substance Employed, per* 1,000 *Suicides by Poison*, 1863-82.

Substance Employed.	Males.	Females.
Prussic acid, oil of almonds, cyanides	321	87
Laudanum and other opiates	261	174
Chloroform, choral, chlorodyne	13	7
Mineral acids	77	79
Oxalic acid	75	113
Arsenic	33	56
Mercury	23	33
Antimony, lead, copper.....	2	8
Ammonia	7	7
Strychnia	63	115
Vermin killer.....	44	155
Phosphorus	9	27
Carbolic acid	48	104
Disinfecting fluid, chloride of zinc.....	3	10
Benzolin, paraffin	3	1
Aconite	6	6
Belladonna	5	7
Other substances	7	11
Total	1,000	1,000

Method of Suicide in relation to Age.—Age also is not without considerable influence upon the preferential selection of methods of self-destruction. This is shown in Table XI, where are given for each sex the proportions in which the several chief methods are used at each successive age-period. It will be noted that the proportions in which poison and drowning are selected are for each sex highest in the first age-period, 0—25 years, and that the same is the case with the proportion in which the gun is used by males; and that after this first age-period the proportions fall regularly under each of these headings with the successive age-periods; excepting that, after the age of 65 years is reached, the proportion of suicides caused by drowning rises very slightly for males, and remains stationary for females. On the other hand the proportion in which cut or stab is the method employed is at its minimum in the first age-period; and then takes for each sex a sudden jump, to remain afterwards throughout life at a high and tolerably uniform level. Hanging also is at its minimum proportion in the female sex in the first age-period, 0—25 years, and then rises successively with each later period; whereas among males, though there is on the whole an increase in the proportion under this heading in later as compared with earlier life, yet the scale of increase is not nearly so regular as in the other sex.

The general result then of this table is that, as age advances, there is an increasing comparative distaste for the use of the gun, of poison, and of drowning, and an increasing preferential selection of the knife and cord.

It is difficult to see why drowning, poison, and gunshot—and especially why the two last—should be more commonly selected in the earlier than in the later stages of life. It clearly cannot be explained by any hypothesis of freer access in youth to these means of self-destruction. Apparently indeed the contrary is the case, for guns and poisons would seem to be more in reach of elder than of younger persons. Neither can the small proportion of cases in which the knife or razor is employed before the twenty-fifth year be explained by any comparative difficulty in finding the necessary instrument. The only explanation apparently open to us is that human beings present psychological differences at different ages, and that these differences include special preferences and aversions.

TABLE XI.—*Methods Employed, per* 1,000 *Suicides, at successive Age-Periods.*

Method.	0—25.	25—	35—	45—	55—	65—
MALES.						
Gun	129	101	77	56	45	38
Cut, stab	89	219	234	209	202	229
Poison	111	111	99	81	58	36
Drowning	192	185	153	145	132	140
Hanging	390	282	351	437	500	485
Otherwise or unstated	89	102	86	72	63	72
	1,000	1,000	1,000	1,000	1,000	1,000
FEMALES.						
Gun	4	2	5	1	1	1
Cut, stab	58	146	142	140	138	146
Poison	246	206	167	117	83	53
Drowning	473	295	238	205	200	200
Hanging	110	184	235	279	305	316
Otherwise or unstated	109	167	213	258	273	284
	1,000	1,000	1,000	1,000	1,000	1,000

Method of Suicide in relation to Occupation.—I have already more than once had occasion to state that in committing suicide there is a tendency on the part of persons to make use of the special instruments of their craft: partly because a man can of course only use those instruments to which he has access, and partly because the ready access to convenient modes of self-destruction may in some cases of excitement suggest the act, and in other and probably more numerous cases may facilitate the instantaneous commission of a deed, which would not have been perpetrated had a longer interval of time been required to procure the necessary instrument; and in corroboration of this view it has been pointed out that in certain occupations, where ready means of self-destruction are always at hand, the suicide-rate is excessively high. Such, for instance, is the case with medical men, with chemists, and photographers, who have free access to poisons, and who use this method in the vast majority of cases of self-destruction. For example, of 21 suicides of photographers, no less than 18, or 85 per cent., were committed by means of cyanide of potassium. Such also is the case with soldiers, who have free access to fire-arms, and employ this method in no less than 35 per cent. of their suicides. Such also is the case with butchers, who use their knife for self-destruction. It is true that miners, who have a ready method of self-destruction always at hand in the shaft of the pit, have nevertheless a very low rate of suicide; nor is the rate excessively high among shoemakers, who might be supposed to use

the knife of their handicraft for self-destruction; but it will also be noticed in the following table, which gives the proportional use of the several methods of suicide in sundry selected occupations, that neither miners nor shoemakers use to any great extent the method to which it might be supposed that their occupations would lead them. Miners, it is true, destroy themselves by jumping from a height in a slightly higher proportion than average men, but the difference is scarcely appreciable, and the most usual mode of self-destruction to which both they and shoemakers have recourse is hanging, as is the case with the ordinary population. Another group in the table that deserves a minute's notice is that of railway servants; it will be seen that a much larger than average proportion of the suicides in this group is effected by lying in front of a train or engine; but whether this coincides with a high suicide-rate I cannot say, as the returns of railway servants in the census were somewhat too vague for safe rate-making.

TABLE XII.—*Methods of Suicide Employed by Males of Different Occupations, per* 100 *Suicides of all kinds*, 1878-83.

Occupation.	Gun-shot.	Cut or Stab.	Poison.	Drown-ing.	Hang-ing.	Jump from Height.	Rail-way.	Otherwise or unstated.
Medical practitioner, student, assistant	9	12	60	2	9	3	–	5
Chemist, druggist	—	—	86	5	7	2	–	–
Photographer	—	10	85	—	—	5	–	–
Soldier	35	17	13	4	17	5	4	5
Butcher	5	31	7	15	35	2	3	2
Shoemaker	3	22	8	19	41	2	1	4
Miner	1	19	1	24	43	7	4	1
Sailor	16	13	5	17	41	2	4	2
Railway servant.....	6	23	6	21	21	–	17	6
Clergyman, lawyer, independent gentleman	29	20	9	15	14	4	2	7
Grocer, draper	7	14	11	18	42	2	3	3
Farmer, grazier	14	18	4	13	46	–	1	4
Agricultural labourer	1	18	2	19	55	–	2	3
Innkeeper, publican, inn servant, butler, cellarman	13	23	9	16	35	1	1	2
All males	7	21	8	15	42	2	2	3

A few groups have been added to the table in order to display any difference of method that might be caused by differences of social position. The chief difference appears to be that persons in the higher ranks and professions, clergymen, lawyers, and independent gentlemen, destroy themselves in much larger proportion by gunshot, and in much smaller proportion by hanging, than

persons of lower station, such as farmers, shopkeepers, and agricultural labourers. The group of innkeepers, publicans, and other persons likely to indulge in intemperate habits, has been added to the table, in order to test to some extent the truth of a statement sometimes made, that the method of suicide preferentially selected in this country by persons suffering from *delirium tremens* is cutting the throat; the results scarcely support this opinion.

Method of Suicide in relation to Season.—Under this heading I have but one observation to make, namely, that persons apparently are comparatively less likely to select drowning as a method of self-destruction in the cold season than in the warmer months. If the year be divided into two periods of six months, the one from October to March, the other from April to September, inclusively, out of 1,000 suicides committed in each period, there are in London, on an average of twenty years, 205 suicides by drowning in the warmer period, and only 177 in the colder period. This is only another example of the fact which came out more strongly when the choice of poisons was under review, namely, that, even when about to commit suicide, persons are not indifferent to considerations of comfort and discomfort. The idea of death in cold water appears repulsive in winter seasons, and that method of self-destruction is avoided.

Such are the statistics of suicide in England and Wales which I have to submit to this Society. I have been much tempted in places to compare the English figures with those of foreign countries. I have, however, rigidly abstained from so doing. Those who have read the laborious treatise of Morselli upon suicide, and have noted how heterogeneous in form, and how unequal in numerical sufficiency, were the materials from different countries with which he was forced to be content, will, I think, agree with me that it is at present more essential that statisticians should look to the accuracy and sufficiency of the returns of their own several countries, than that they should indulge in premature comparison.

APPENDIX.

TABLE XIII.—*Suicide Mortality, at successive Age-Periods, of Males engaged in different Occupations*, 1878-83.

Reference Number.	Occupations.		Ages. 15—	20—	25—	45—	65 and upwards.
1	Clergyman, priest, minister	years of life ...	—	4,656	95,160	74,712	26,322
		suicides ...	—	0	10	15	3
		,, per mln.	—	*0·00*	*105·09*	*200·77*	*113·97*
2	Barrister, solicitor	years of life ...	—	5,964	58,626	30,264	9,462
		suicides ...	—	0	19	17	1
		,, per mln.	—	*0·00*	*324·09*	*561·72*	*105·69*
3	Physician, surgeon, general practitioner	years of life ...	—	4,860	49,800	26,610	9,276
		suicides ...	—	2	19	17	4
		,, per mln.	—	*411·52*	*381·53*	*638·86*	*431·22*
4	Schoolmaster, teacher	years of life ...	70,890	52,752	102,642	33,564	5,238
		suicides ...	3	2	16	18	2
		,, per mln.	*42·32*	*37·91*	*155·88*	*536·29*	*381·83*
5	Commercial traveller, broker, agent	years of life ...	11,958	38,394	225,030	105,108	15,798
		suicides ...	0	6	61	51	14
		,, per mln.	*0·00*	*156·27*	*271·07*	*485·22*	*886·19*
6	Commercial and law clerk	years of life ...	321,870	282,492	489,972	130,464	20,526
		suicides ...	11	36	122	62	10
		,, per mln.	*3·418*	*127·44*	*248·99*	*475·23*	*487·19*
7	Farmer, grazier	years of life ...	173,022	158,988	569,556	560,760	207,774
		suicides ...	1	10	91	265	121
		,, per mln.	*5·78*	*62·90*	*159·77*	*472·57*	*582·36*
8	Corn miller	years of life ...	17,940	18,888	58,788	34,260	6,366
		suicides ...	0	2	4	19	6
		,, per mln.	*0·00*	*105·89*	*68·04*	*554·58*	*942·51*
9	Gardener, nurseryman	years of life ...	89,496	91,938	326,574	255,444	88,284
		suicides ...	3	2	32	70	37
		,, per mln.	*33·52*	*21·75*	*97·99*	*274·03*	*419·10*
10	Innkeeper, publican, spirit, wine, beer dealer	years of life ...	5,220	16,134	234,120	181,404	28,902
		suicides ...	0	1	94	110	24
		,, per mln.	*0·00*	*61·98*	*401·50*	*606·38*	*830·39*
11	Inn, hotel servant	years of life ...	51,168	54,552	82,800	17,940	2,250
		suicides ...	3	11	33	20	2
		,, per mln.	*58·63*	*201·64*	*398·55*	*1,114·83*	*888·89*
12	Domestic indoor servant	years of life ...	86,880	59,316	116,358	39,228	6,744
		suicides ...	7	4	21	29	10
		,, per mln.	*80·57*	*67·44*	*180·48*	*739·27*	*1,482·80*
13	Chemist, druggist	years of life ...	19,698	16,662	47,436	21,306	3,510
		suicides ...	3	5	18	12	3
		,, per mln.	*152·30*	*300·08*	*379·46*	*563·22*	*854·70*
14	Bookseller, stationer, grocer, draper, coal dealer, tobacconist, ironmonger, general shopkeeper	years of life ...	261,156	223,152	607,026	312,684	65,760
		suicides ...	14	20	97	102	30
		,, per mln.	*53·61*	*89·63*	*159·80*	*326·21*	*456·20*
15	Butcher, fishmonger, poulterer, greengrocer, fruiterer	years of life ...	107,874	103,134	308,508	151,116	27,882
		suicides ...	4	9	75	107	28
		,, per mln.	*37·08*	*87·27*	*243·11*	*708·07*	*1,004·23*

TABLE XIII.—*Suicide Mortality, at successive Age-Periods, of Males—Contd.*

Reference Number.	Occupations.		Ages. 15—	20—	25—	45—	65 and upwards.
16	Cheesemonger, butterman, milk dealer	years of life	23,550	20,286	61,800	32,124	7,368
		suicides	0	1	19	14	12
		„ per mln.	*0·00*	*49·30*	*307·44*	*435·81*	*1,628·66*
17	Baker, confectioner	years of life	88,068	69,336	178,248	82,286	16,464
		suicides	3	8	29	52	14
		„ per mln.	*34·06*	*115·38*	*162·69*	*631·94*	*850·34*
18	Hairdresser, hatter, glover, umbrella, stick maker	years of life	34,314	30,684	92,514	44,796	11,478
		suicides	2	1	25	24	10
		„ per mln.	*58·29*	*32·59*	*270·23*	*535·76*	*871·23*
19	Watchmaker, philosophical instrument maker, jeweller	years of life	44,766	47,496	137,256	59,784	12,558
		suicides	0	4	33	27	7
		„ per mln.	*0·00*	*84·22*	*240·43*	*451·63*	*557·41*
20	Cabinet maker, upholsterer, French polisher, shop fittings maker, carver and gilder, undertaker	years of life	64,536	67,860	203,112	90,912	17,526
		suicides	1	2	39	56	10
		„ per mln.	*15·50*	*29·47*	*192·01*	*615·98*	*570·58*
21	Printer, bookbinder	years of life	103,902	67,818	153,642	50,214	7,320
		suicides	1	9	24	23	7
		„ per mln.	*9·62*	*132·71*	*156·21*	*458·04*	*956·28*
22	Tailor	years of life	70,572	75,078	250,944	185,856	52,680
		suicides	1	3	37	85	28
		„ per mln.	*14·17*	*39·96*	*147·44*	*457·34*	*531·51*
23	Shoemaker	years of life	124,554	118,392	412,800	307,614	92,454
		suicides	5	12	84	105	45
		„ per mln.	*40·14*	*101·36*	*203·49*	*341·34*	*486·73*
24	Tanner, fellmonger, currier, furrier, saddler, harness and leather goods maker	years of life	44,760	45,558	149,196	73,536	16,392
		suicides	1	2	21	33	9
		„ per mln.	*22·34*	*43·90*	*140·75*	*448·76*	*549·05*
25	China, earthenware, glass maker	years of life	56,376	40,818	121,806	45,660	5,802
		suicides	1	0	16	14	3
		„ per mln.	*17·74*	*0·00*	*131·36*	*306·61*	*517·06*
26	Worker in textile factories	years of life	455,718	329,484	815,166	440,784	100,908
		suicides	10	13	112	176	77
		„ per mln.	*21·94*	*39·46*	*137·40*	*399·29*	*763·07*
27	Mason, bricklayer, builder, tiler, slater, plasterer, whitewasher	years of life	193,712	256,308	807,060	378,822	75,942
		suicides	0	9	73	125	37
		„ per mln.	*0·00*	*35·11*	*90·45*	*329·97*	*487·21*
28	Painter, plumber, glazier, locksmith, bell-hanger, gasfitter	years of life	143,346	139,482	441,552	172,782	23,166
		suicides	4	12	47	76	13
		„ per mln.	*27·90*	*86·03*	*105·44*	*439·86*	*561·17*
29	Carpenter, joiner	years of life	201,678	208,026	615,000	291,138	75,936
		suicides	6	10	75	111	47
		„ per mln.	*29·75*	*48·07*	*121·95*	*381·26*	*618·94*
30	Sawyer	years of life	13,320	16,170	59,748	46,506	10,392
		suicides	0	0	6	18	2
		„ per mln.	*·00*	*0·00*	*100·42*	*387·05*	*192·46*
31	Wheelwright, coachmaker	years of life	51,738	50,490	156,900	75,924	18,684
		suicides	1	1	20	21	5
		„ per mln.	*19·33*	*19·81*	*127·47*	*276·59*	*267·61*
32	Shipwright, shipbuilder	years of life	33,318	34,932	127,734	64,158	8,904
		suicides	0	1	6	12	4
		„ per mln.	*0·00*	*28·63*	*46·97*	*187·04*	*449·24*

TABLE XIII.—*Suicide Mortality, at successive Age-Periods, of Males—Contd.*

Reference Number.	Occupations.		Ages. 15—	20—	25—	45—	65 and upwards.
33	Policeman	years of life	852	32,640	134,838	26,118	600
		suicides	0	2	11	11	5
		„ per mln.	*0·00*	*61·27*	*81·58*	*421·17*	*8,333·33*
34	Blacksmith	years of life	100,956	95,286	280,638	149,412	33,528
		suicides	3	4	40	55	19
		„ per mln.	*29·72*	*41·98*	*142·55*	*368·11*	*566·69*
35	Metal workers of all kinds	years of life	631,002	606,498	1,761,906	732,870	112,428
		suicides	11	32	218	251	51
		„ per mln.	*17·43*	*52·76*	*123·75*	*342·49*	*453·62*
36	Coachman, cabman, flyman, groom, stableman	years of life	109,266	140,232	419,502	159,942	23,502
		suicides	4	8	81	81	19
		„ per mln.	*36·61*	*57·05*	*193·09*	*506·43*	*808·44*
37	Carter, carrier, haulier	years of life	87,756	120,222	360,030	142,566	20,586
		suicides	5	5	45	54	12
		„ per mln.	*56·98*	*41·59*	*124·95*	*378·77*	*582·92*
38	Miner	years of life	441,288	419,508	1,094,304	428,394	53,862
		suicides	2	12	48	56	21
		„ per mln.	*4·53*	*28·60*	*43·86*	*130·72*	*389·89*
39	Quarryman	years of life	35,970	43,518	144,930	67,518	11,634
		suicides	0	3	14	15	2
		„ per mln.	*0·00*	*68·94*	*96·60*	*222·16*	*171·91*
40	Soldier	years of life	55,038	119,424	160,122	5,136	168
		suicides	3	22	81	12	1
		„ per mln.	*54·51*	*184·22*	*505·86*	*2 336·45*	*5,952·38*
41	Fisherman	years of life	32,130	31,536	69,192	29,998	8,724
		suicides	1	0	3	11	2
		„ per mln.	*31·12*	*0·00*	*43·36*	*366·69*	*229·25*
42	Porter, messenger, watchman	years of life	210,408	52,992	141,564	84,306	17,238
		suicides	5	6	34	38	14
		„ per mln.	*23·76*	*113·22*	*240·17*	*450·77*	*812·16*
43	Agricultural, general, road, railway, clay, sand, gravel labourer	years of life	1,398,414	1,095,636	3,018,072	2,119,098	677,988
		suicides	44	56	345	619	313
		„ per mln.	*31·46*	*51·11*	*114·31*	*292·11*	*461·66*
	All males	suicides per mln.	27·20	65·93	147·66	359·70	417·94

Discussion *on* Dr. Ogle's Paper.

The President said there were many gentlemen present who not only could appreciate the value of this paper, the value of its precision, and the unique character of the results communicated, but could probably contribute information upon some points, or from their experience could elucidate or modify some of the conclusions arrived at by Dr. Ogle. He should be very glad to hear any gentlemen who would favour the Society with their observations.

Mr. Stephen Bourne said they must all feel very much indebted to Dr. Ogle for having given his attention to a subject that required some fortitude to deal with, and for the very great amount of skill he had shown in the method of arranging his paper, so exceedingly valuable to all those who wished to study the progress of mankind and the influence upon their lives of the circumstances under which men lived. With regard to the effect of education, he thought the conclusions come to by Dr. Ogle might in some degree be modified, because education was only a means to something beyond, and he did not think the excess of suicides amongst educated persons over those who were uneducated, was due so much to their being educated as to the positions in life into which that education led them. In proportion as the mind was stored and trained, the occupations in which men engaged presented features more likely to affect the balance of reason, and place their followers in circumstances where they might be less disposed to face the evils of life than certain lower callings, which rendered those engaged in them more stolid and impassive. Education certainly led to higher mental pressure, which was the reason, he thought, why physicians, and barristers, and those occupying positions which kept the mind on a perpetual strain, were more likely to lose sight of the value of life, or of the sin of destroying it, than those lower in the social scale. Seeing how fully Dr. Ogle had borne testimony to the evil influence of intemperate living, he had been struck by the absence from the paper of one species of incentive to suicide, viz., the indulgence of lustful desires. The author had pointed out how, particularly with regard to females, the percentage of suicide increased at the age of puberty, and he (Mr. Bourne) thought that that was due to the fact that the errors into which they fell led them to undervalue the life which had been robbed of its purity, and so to rush from the one evil to a greater—that of precipitating themselves into eternity when they were unfit to meet its possibilities. It would be of great advantage to know whether those who committed suicide were married or single, and the nature of their matrimonial relations, because in his experience he had found that those who violated the laws of morality were more liable to take their own lives than those who lived virtuously. As to clergy-

men, he quite expected that they would form a small factor in the number of suicides, owing to the influence upon them of the principles they professed and the doctrines that they taught. He considered the period taken during which suicides in connection with agricultural depression occurred was too short to give any definite results. He also thought that the climatic conditions had very much to do with such self-destruction, because when agricultural operations were unsuccessful, the meteorological conditions were often depressing. It used to be said that November was the month in which most suicides of persons living in towns took place, owing to the prevalence of fogs, but the tables of Dr. Ogle entirely contradicted that impression. It was very possible that miners might not be less subject to the inclination to suicide than others; but many of them suffered violent deaths by accident, and it might be that those who were the least ready to avail themselves of means of escape were those who would be more likely to fall victims to the catastrophes peculiar to their calling. Dr. Ogle had brought out many valuable points of comparison between the insanitary-rate and the suicide-rate, and he (Mr. Bourne) should like to ask him to direct his attention from the crime of *felo de se* to the analogous one of murder, as a comparison of the two would be very interesting. He could bear testimony to the very great value which the paper possessed, and desired again to express his thanks to Dr. Ogle for bringing the subject before them.

Dr. G. B. Longstaff thought the paper a very valuable one, taken as a lesson in methods, quite apart from its subject matter. Dr. Ogle had been discussing an exceedingly precise phenomenon. Deaths from suicide were certified more distinctly than deaths from any other cause, and the limits of error must be small. The manner in which the paper was compiled would show them, however, that even in investigating such a definite and precise phenomenon as suicide, there were rocks to be avoided. He referred particularly to the great stress laid upon age-distribution, a thing often overlooked by medical officers of health and others in drawing up comparative statistics of towns. Dr. Ogle had also called attention to the desirability of excluding small numbers, and had restricted himself to those periods of life within which the greatest number of suicides occurred, so that he might not arrive at fallacious results by arguing from a few cases. He was sorry that Dr. Ogle had not made use of the data at his disposal with regard to the geographical distribution of suicide. They knew from such imperfect works as had been written on comparative suicide in different countries that, as they would have expected, suicide was to some extent a question of temperament, and that was very much a question of race. There were great racial differences in England. The agricultural classes of the south were very different from the manufacturing and mining populations of the north, and the constitution of the northern towns was very different with regard to race and character of the people from that of the metropolis. Lancashire and West Yorkshire taken together as one great population centre were very convenient for comparison with London, being

somewhat similar in numbers, and both town populations. He hoped Dr. Ogle would deal with this subject in a future paper, and also with the case of Scotland and Ireland, especially noting whether there was any difference between the north and south of Ireland. He thought the author had shown a magnanimous spirit in having attacked the profession to which he himself belonged, for this was the second occasion on which he had shown that the medical profession compared unfavourably in some respects with inferior rank in life. No doubt the medical profession was not altogether guiltless of those habits which prompted to suicide in the case of publicans and butlers, and they had the other temptation of having a weapon at hand. With reference to educated men, it must be remembered that educated men led a life of worry, and that worry probably had a great deal to do with suicide. The more educated a man was, as a rule, the more worried he was likely to be, especially in these days of rapid communication by telegram and railway. But at the same time he believed that education itself had a distinct tendency to unhinge the mind, and in proportion as a man studied he was more and more likely to yield to the impulse of self-destruction if it came upon him, and no doubt the impulse did occur much more frequently to highly educated people than to others. It was obvious that the special tendency to drowning at a certain age in the female was to be attributed in a considerable proportion of cases to seduction, which most frequently occurred at the younger ages, and probably at those ages caused a greater shock to the mind.

Mr. H. Moncreiff Paul said that although statistics were given in Table IV with regard to commercial travellers, brokers, and agents, he could not discover where Dr. Ogle separated the mercantile profession from others. There was no doubt, as had been said by a previous speaker, that the worry of mercantile life through telegrams and otherwise tended to increase the number of suicides amongst that portion of the commercial community who were especially engaged in speculation; and if it were possible so to disintegrate the term "broker" as to show the various kinds embraced therein, suicides would be found to be much more numerous amongst brokers connected with the stock exchange than those in any other department. He agreed with Mr. Bourne that Table VII, treating of farmers and the number of suicides and failures amongst them, was not very reliable, as the period taken, six years, was too short. On reference to the table it actually appeared that in 1883, when wheat was 41*s.* 7*d.* per quarter, the suicides were less than in 1879 and 1880, when it stood at 43*s.* 10*d.* and 44*s.* 4*d.* respectively; and if that were the case in these years, what might not the suicides be in the present year, when wheat was so very much cheaper. It was hardly fair to take the "Gazette" average price of wheat in a comparison of this kind, because the wheat market was affected very materially by the importation of foreign grain. With regard to Table IX, the number of females committing suicide in ways other than those specially mentioned was 176, whereas that of the males was

only 33. As the former represented so large a proportion of the total methods, he thought it unfortunate that more precise data were not obtainable for the detailed analysis of suicides of females under this category.

Mr. GIFFEN said he should not like an occasion like the present, in which Dr. Ogle read a paper before the Society for the first time, to pass without saying a word to thank him. The paper was every way remarkable. One of the difficulties they were in in dealing with the paper was that there was very little material with which to criticise it. The knowledge of the statistics of suicides was not very widely distributed, and it was difficult indeed to have a criticism of the paper from any knowledge which the speakers had originally of their own. Speaking for himself he was bound to acknowledge that he had no such acquaintance with the statistics of suicide as would enable him to go into the matter in detail, although at different times, as he supposed most of them had done, in the course of general reading and observation he had read books containing references to the statistics of suicide, and picked up a few general ideas upon the subject. He thought, however, that a Society like theirs could well appreciate the excellence of the method which Dr. Ogle had made use of, and the amount of time and labour which he must have bestowed in drawing up the tables which he had brought before them. It was important when a paper like this came before them, which supplied a large amount of original information, something entirely new to the Society, and evidently to a large extent a real contribution to the scientific knowledge of the subject, that this fact should be distinctly recognised. Having made that observation, there were just one or two points that he wished to draw attention to, not for the sake of criticism, but simply as points which might be useful to keep in mind if the study of subjects like this were to be further continued, as he hoped Dr. Ogle might be led to continue it. First, with regard to what Mr. Paul had said, he hoped Dr. Ogle would not take the criticism upon the table which he had drawn up with reference to the suicides of farmers as representing what he might call a statistical criticism upon the paper, because it was quite clear from what Dr. Ogle said that he simply drew attention to the fact that the critical period for farmers was the years 1878-79, and the comparison which he drew was not between suicides and the price of wheat, but between the increase of suicides and the period in which agricultural distress culminated. That was the real comparison which Dr. Ogle gave them; and although part of the comparison was the price of wheat, yet that was not the only comparison; it was only given as a contributory means to show in what year the distress of farmers culminated. It was no doubt quite true that in the years subsequent to 1879 the price of wheat had fallen still more, but it was also true that in subsequent years down to 1884 and 1885 the distress of farmers was not so great as it was in 1878-79, because the whole circumstances were more unfavourable to farmers in those years than they had been since, at least until quite lately.

Next, it would have been additionally interesting to many people like himself if Dr. Ogle, in addition to his figures with reference to the distribution of suicides extending from 1850 to 1883, had also given some idea of the total number of suicides in each year. No doubt those figures were to be obtained in some other way; but it would have been interesting if he had given the total number of suicides and rate per million in each year, or in a group of years, to enable them to see in a moment the mass of the particulars dealt with, and whether there was any continuity in the matter, or any great fluctuation of that kind, which might suggest a point or two for consideration in connection with the fluctuations of suicide according to season, age, occupation, &c. Another point which perhaps Dr. Ogle would be able to inform them upon, was whether it was not possible that there might be some connection between the method of suicide and the increase of suicide in the summer months, which appeared to be a very remarkable fact. There was an increase of suicide by the method of drowning in the summer months, and whether that might not have contributed to the total increase of suicide in those months was a suggestion which he (Mr. Giffen) threw out for consideration. He had no means of deciding from any figures in the paper itself whether that would be the case or not; but possibly Dr. Ogle would be able to say whether there was any possibility of connecting suicide according to seasons with the method of suicide. It would be desirable in any future paper (and no gentleman could be found better able to do it than Dr. Ogle) to extend this comparison to other countries. Their acquaintance in the Society with what had been written about suicide in other countries was limited, and he was bound to say for himself that he was not acquainted with any of the books which Dr. Ogle had quoted. There was a book by M. Legoyt, which was not quoted, in which a great many comparisons were drawn between different countries. The whole of it seemed to be exceedingly interesting, but he was quite unable to say from recollection what were the different points of interest. He was quite sure, however, that this comparison of suicide between different countries could not but be interesting in itself, and would throw a great deal of light upon some of the problems stated in the paper. The difficulties of comparison were doubtless as great as Dr. Ogle had stated, but he hoped at some future time they might look forward to Dr. Ogle favouring them with another paper dealing with this subject, and thereby adding to the large amount of information which he had already given them.

Dr. Robert Lawson, referring to the high percentage of suicides in the army, said that a very considerable proportion of the people who had destroyed their prospects in life went into the army as a refuge when everything else had failed them. Youth and good health might carry them through their difficulties at first, but when they got a little older and began to weigh the disadvantages they had placed themselves under, they became very liable to commit suicide. To equalise the differences of age-distribution, Dr. Ogle has adopted that in England and Wales

between the age of 25 and 65, according to which in a million of males 65 per cent. would be under 45, and 35 per cent. over 45. The principle is sound, and affords trustworthy results, provided the distributions of ages in the class to which it is applied do not differ materially from these proportions; if it does, a very erroneous impression may be conveyed. Taking the numbers given for the soldiers in Table XIII, there are under 25 years of age 174,462, and above 25 years 165,426, so that 51 per cent. of the whole force were under 25, and only 49 per cent. above 25. That at once removed more than one-half of the force from the limits that Dr. Ogle had laid down. Again, taking the 49 per cent. above the age of 25, of the total number there are 160,122, or 97 per cent., between 25 and 45, and only 3 per cent. above that age. Working out the plan Dr. Ogle had adopted, the same weight was given to the last 3 per cent. as there was to the much larger 97 per cent., *i.e.*, they increased the value of the 3 per cent. twelve times, introducing it as if it applied to an equal number of people. While quite admitting therefore the value of the plan laid down, these results deviated too much from the age-distribution it established to permit of their being received as of much weight. Even so long ago as 1837-46 the percentage of the army under 25 years of age was 52, and above that age 48. Ever since that time, taking five-yearly periods, the majority had been under that age, excepting on one occasion, when some years after twenty-five second battalions were embodied. The number above 25 years exceeded that under it, but in every other instance the greater proportion of the troops were under that age. Considering that point, he thought Dr. Ogle would see that it deviated too far from the normal body to permit of it being carried out. No doubt the character of the race had a very great deal to do with this question, and on some occasions that was found to be developed to a very great extent. He heard a story in Jamaica which showed how social peculiarities might affect the question. One of the black regiments there many years ago had a commanding officer who was a great martinet, and harassed the men to such an extent that they commenced to hang themselves in large numbers. Their impression was that when they committed suicide they went back to Africa, their own country, and they used to put their knapsacks and all their property on their backs and so hang themselves, thinking that they would carry all their wealth away with them. It became necessary to put an end to this, and the commanding officer told them he knew perfectly well they were committing suicide to get away from him. He said, "you think you go to Africa, but that is a mistake, you go to a much warmer place; and I warn you that the next man that commits suicide I will do the same, I will go there and I will make it ten times harder for you than here." The result was that there were no more suicides.

Mr. W. H. Millar said it was interesting to find that the figures given by Dr. Ogle agreed with the figures that he (Mr. Millar) had worked out for the army, in a paper which he had

the honour of reading before the Society some years ago. He would suggest that in any future similar papers periods of five years should be adopted instead of ten, which would make the facts easier of comparison. There was a very curious agreement about the months during which suicide was most prevalent. June and July were the months in which suicide was most frequent in the army; and their lamented friend Dr. Guy had worked out similar figures dividing the year into periods of hottest, coldest and temperate months, and he showed the four hot months to be those in which the largest number of suicides occurred, so that he virtually agreed with Dr. Ogle on that point. The statistics of the army agreed wonderfully with those of Dr. Ogle's as to the mode of suicide, and especially in this circumstance, that in the eight years preceding the order which took away ball cartridges from the soldiers, the suicides were 122, whereas in the eight years following that order they fell to 63, proving that the temptation to commit suicide very much corresponded with the means available for so doing. They also corroborated Dr. Ogle's statements with regard to poisons, showing as they did that it was the dispensers and the class of men who could get poison readily who made use of them to terminate their existence. One reason perhaps why the percentage for the army was higher than in civil life, arose from the fact that in the army they generally had good means of ascertaining whether a man did commit suicide or not, whereas the results of coroner's inquests were not always found to be infallible guides in civil life, and had to be regarded with a considerable amount of suspicion for insurance purposes.

Dr. Harrington Tuke thought the paper had rather led to an erroneous conception of the influence of education upon suicide. Some further examination and discussion was required, and he thought if the discussion was adjourned they might be able to study a little more closely what might be said on that matter. He should be very glad if a table were prepared showing how many of the 46,000 suicides were absolutely connected with diseases of the brain, for if that were given he thought it would show a very different result as to the educated classes. It was incontestably the fact that the percentage of insanity was less amongst the educated than the uneducated class, and it was often disputed whether any case of suicide could be separated from insanity. One thing was clear, namely, that the great wave of suicide in June and July was commensurate with the great wave of insanity; it depended simply upon the physical state of the blood, the increased circulation acting on disordered nerves. Nine times out of ten suicide was insanity. He should be very glad if the discussion could be adjourned. He thought Dr. Ogle's most valuable paper should receive further examination.

The President said an opportunity was likely to occur in which the question Dr. Tuke had raised could be fully discussed. Mr. N. A. Humphreys was to read a paper upon the subject of Lunacy, and that would afford a favourable opportunity for enter-

ing upon this question. He was afraid that the present discussion could not be adjourned, but hoped Dr. Tuke would favour the Society with his presence at the reading of Mr. Humphreys's paper, and would take up the subject early in the evening.

Dr. Ogle, in reply, thanked the members for the patience with which they had listened to his paper, and also those who had spoken, for their expressions of general agreement in the conclusions to which he had come, and the courtesy of their criticisms. Mr. Bourne seemed to agree with him that suicide was more common among the educated than among the uneducated classes, but it by no means followed that that was the direct effect of education, though very possibly it might be the indirect result. With regard to the question why there was no table showing the civil condition of suicides—whether they were married or single—the only reason why it was not given was that he had had no means of obtaining the necessary information, inasmuch as the death-registers took no account, in the case of males, of the conjugal condition. An objection had been made to his remarks on the great increase of suicides among farmers in 1879 and 1880, that the basis of observation extended over too short a period of years, and it was said that, if the increase of suicides in those two years had really been due to acute agricultural distress, there should have been a still greater increase in succeeding years, inasmuch as the prices of agricultural produce had undergone further and notable reduction. But he would point out that the price of produce was only one element in the question—there was for instance the amount of crop—and he would ask, how came it about, if farmers had been in greater distress since 1879-80 than in those two years, that the number of bankruptcies among them had diminished so greatly. As one possible explanation for the lack of increase of suicides, he thought it might be reasonably suggested that during 1879-80, when agricultural distress was most acute, a large portion of the weakly farmers who were unable to stand against the storm were weeded out, and that those who remained possessed stouter hearts and perhaps larger purses. Dr. Longstaff had expressed surprise that there was no table giving the geographical distribution of suicides in this country. He (Dr. Ogle) had commenced one treating of the suicides in each county, but afterwards abandoned it as worthless on account of the insufficiency of the data, when the suicides were divided out to such comparatively small areas as counties. Morselli had made such a table, and had been landed in the conclusion that the part of England in which suicide was most common was the little county of Rutland. Another reason why he did not give such a table was his belief that the geographical distribution of suicides was due not to purely geographical conditions, but to the nature of the chief occupations in which the inhabitants were engaged. Thus Dr. Longstaff had said that it would be interesting to have the suicide-rates in Durham and the neighbouring northern parts of England, but as those parts contained in preponderating degree a mining population, to do so would be simply to have in another form the

mining rate. To the view that men destroyed themselves preferentially by the method which was most accessible to them, it was objected that although sailors had the ocean always under their feet, they did not in any large proportion commit suicide by drowning; but in a ship there was cordage always at hand, and the table showed that they hung themselves, thus following the general preference of all males for the rope. Mr. Paul asked why the suicide-rate for mercantile men was not given in the table, but it was very difficult to know of what was the precise meaning of the "mercantile" class. The term "merchant" was used too vaguely to form the basis of any trustworthy statistical calculations. Was for instance, a rag-merchant a merchant? Mr. Giffen had recommended a comparison between the suicide rates of this and other countries, but he (Dr. Ogle) was of opinion that the time had scarcely come when such comparison could be fruitful of good results. Such comparison, however, so far as the data permitted, had been made by Morselli. Dr. Lawson had pointed out that the great bulk of the army consisted of men under 25 years of age, and that these were excluded from the calculation of the suicide-rates. This was true, but the comparison in the table was not between the aggregate army and other professions, but between soldiers of certain specified ages and men of similar ages in other occupations, and no other mode of comparison would have been fair. But in the table appended to the paper would also be found the suicide-rates of men under 25, and that of soldiers would be seen to be excessively high. Dr. Lawson's explanation of the appalling number of suicides in the army being due to its being the refuge of people of bad character and habits was an exceedingly probable one; besides which the deaths from that cause were very possibly recorded more accurately than among civilians. In conclusion, Dr. Ogle again thanked the members for their kind reception of his paper.

The President observed that Mr. Giffen had anticipated him in inviting the thanks of the members to Dr. Ogle, but he was sure that those who had heard the paper would appreciate not only the novel results it presented, but also the example which it set of the precise method of examining the question which it embodied. He hoped that it would lead, in connection with the new International Statistical Society, to the investigation of the question on the continent. He was sure he might thank Dr. Ogle in the name of the members for his very valuable communication.

MISCELLANEA.

CONTENTS:

	PAGE
I.—Financial and Commercial History of 1885	136
II.—The Agricultural Returns for the Year 1885	144
III.—Mortality in the Medical Profession	164
IV.—The Fires in London during the Year 1885, and the Metropolitan Fire Brigade	170
V.—German Literature of 1884 and 1885	176
VI.—English Literature in 1885	176
VII.—The Production of Precious Metals and the Monetary Circulation in Various Countries. (A translation)	178
VIII.—The National Wealth of France compared with other Countries. (A translation)	186
IX.—Quarterly List of Additions to the Library	201

I.—*Financial and Commercial History of* 1885.

The following is taken from the Supplement to the *Statist* of 30th January, 1886, in continuation of similar extracts for previous years—commencing with the year 1878:—

"The doubtful language in which we spoke a year ago of the prospects for the twelve months then ensuing has been more than justified. The year 1885 has been in every way more unsatisfactory for trade than either of its predecessors, which were unsatisfactory enough. To begin with the foreign trade, it appears that as compared with 1884, in which there had been a decrease of nearly 3 per cent. in the exports as compared with 1883, there has been a further decrease of no less than $8\frac{1}{2}$ per cent. This decrease also, when examined, is found to be very largely due to a decline in quantity, and not merely to a decline in value. During some months of the year the decrease was very large indeed, amounting in February to 10·9 per cent., in March to 9·5 per cent., in April to 12·5 per cent. and in May to 13·6 per cent. Since May the decline has been on the whole at a lower rate than in these early months of the year, but it has, nevertheless, been very considerable. In other words, slight as the decline of our foreign export trade had been in 1883 and 1884, compared with the maximum previously reached, it may be considered that the decline at the present moment is decided both in quantity and in value. It is not greater than has often been witnessed in former periods of depression—in fact it is much less; but it is a distinct and marked decline. The actual figures, comparing the whole of the year 1884 with the year 1885, are: 1884, 233,000,000*l.*, 1885, 213,000,000*l.*, a reduction of very nearly 20,000,000*l.* Similarly the imports show a very considerable decrease, the total for 1884 having been, in round figures, 390,000,000*l.*, while the total in 1885 is 374,000,000*l.* only—a reduction of just about 16,000,000*l.*, or rather more than 4 per

cent. As regards the imports, the figures are not so unsatisfactory in one way as those of the exports, because the decline is due in part to the excellence of the home harvest, which has caused a diminution of the quantities of food articles imported as compared with previous years, and in part it is due to the great decline of prices which has taken place, from which, there is no doubt, one year with another, the consumer in the United Kingdom derives very great benefit. Still, from the point of view of the contraction of the volume of trade, the decline is serious, especially when it is considered that it follows a very large decline which took place the previous year, the imports, it would appear, having contracted in 1884 more than the exports, while in 1885 the exports contracted more than the imports; in the two years the contraction in all is at much about the same rate. Other facts which lie on the surface show the same falling off of business. The tables published weekly in our Tabular Appendix relating to the traffics of the principal English railways, show that in the first half of the year the gross receipts fell from 28,700,000*l.* to 28,097,000*l.*, a decrease of 603,000*l.*, or 2·1 per cent., and in the second half of the year they fell from 31,373,000*l.* to 30,848,000*l.*, a decrease of 525,000*l.*, or 1·6 per cent. Here again, too, the decline is probably in part one of values merely; but it is equally true that there is also a decline of actual business, as will become fully apparent when the accounts of the railway companies are examined. All these figures have to be considered in connection with the further fact that in ordinary times, allowing for the increase of population, there ought to be a steady increase if the former prosperity is to be maintained. Not only has there been no increase, but there has been a decrease, and, consequently, the complaints of depression have been louder and more vehement during the past year than at any time before. Throughout the year, also, there have been continual reports of strikes and lock-outs in the different trades of the country. In some agricultural districts there has undoubtedly been an increase of vagrancy, and in one or two instances, particularly in the Midland counties, there have been reports of outrages, which are due to the discontent of the agricultural population with the fall in wages. Altogether, then, the year 1885 has been one of the lean years in trade; and although when comparisons are carried back a good way it is evident that the normal condition of the country is not unsatisfactory, the production and consumption of the community being both enormous as compared with former periods, yet there is no doubt that, as compared with recent times of prosperity, there has been considerable depression, and the complaints of low prices and of suffering amongst the working classes are in that view fully justified.

"*The Events of the Year.*

"The leading events of the year which have had an influence upon general business have undoubtedly been, first a dispute with Russia at the beginning of the year concerning the definition of the Afghan Frontier, which nearly brought both countries to the

brink of war, and undoubtedly led to the suspension of a great deal of speculative or optional business; second, the partial recovery of business in the United States, which in the latter part of the year reacted on this side and contributed to the growth of a more hopeful feeling on the Stock Exchange and in financial circles; and, third, the general election in November, which in turn had for its result an awkward balancing of parties, so that no one has a clear majority, while the Irish element is so large as to have forced upon the country the question of organic changes in the Constitution, and has thus created a condition of suspense which unfavourably affects all business. There have been events of a minor character, some of them not unimportant in themselves, such as the renewed decline in silver, consequent, mainly, on the expected suspension of the silver coinage in the United States; but so far as the effect on general business is concerned the above three events which we have enumerated appear to be the most important. The decline in silver itself, though serious enough, and affecting very unfavourably for a time the business between India and this country, cannot have had the serious effects generally which the other events named have had.

"The dispute with Russia in the beginning of the year was undoubtedly a serious matter for trade. Following as it did immediately after the failure of the campaign to relieve General Gordon at Khartoum, the dispute created a general feeling of gloom throughout the country. Great difficulties for business were feared, taxation was largely increased, and the stoppage of many speculative undertakings must have reacted upon all trade. The shipping trade benefited for the time by the demand for ships on account of the Government in view of the expected hostilities; but this demand was necessarily temporary only, and was inevitably succeeded by a complete reaction. The apprehension of a great war must always be a very serious matter for trade, almost more serious than the outbreak of war itself, because it is the suspense which prevents people from engaging in transactions. When war actually breaks out it is often found that business gets adjusted to the new conditions; and it is even possible that the Government demand, acting upon many different industries, may be the beginning of a long-continued improvement. In the end, the continuance of war inevitably leads to bad trade; but the beginning of a war appears to be hardly so injurious to trade as the apprehension of war itself. We should set down to this cause, without doubt, a large part of the peculiar depression of the past year.

"The general election and the evident magnitude of the Irish difficulty have also had a bad effect for a time upon trade. The reports which have appeared in the papers of actual loans which were in contemplation to northern towns in Ireland, and which would have led to capital expenditure and to the employment of labour, are undoubtedly well-founded; and the suspense, we fear, has extended to other departments of industry throughout the kingdom, and is not confined exclusively to Ireland. The bare idea of the large constitutional changes which are talked of, and the discussion of which cannot be avoided, is quite sufficient to

take away the stimulus to many undertakings which require a serene political atmosphere for their initiation. When there are such discussions, the inevitable result amongst business men is a certain fear of the unknown, and with regard to the Irish difficulty, this apprehensiveness is not diminished by the frequent assertions that any constitutional change in Ireland is likely to lead to outrage and to civil war. Until the air is cleared it is natural that business people should to some extent hold aloof. Consequently, although current hand-to-mouth business goes on, and seems to be increasing steadily, yet there is absent a certain element which is necessary to the full employment of the industrial machine on which the margin of profit to those who run the machine depends.

"The other principal event we have referred to, namely, the partial revival of business in the United States, has helped largely to produce effects of an opposite kind to those resulting from these political events. Probably enough, but for the fact that the political events have themselves had so much influence, the beginning of improvement in the United States would have had more effect upon this side. There can be no doubt that, with the steady growth of the United States during these two or three years of depression, the time had at last come for a turn in affairs in that country. The increasing population had created new demands for railways and other works, and the machine in the country had begun to be very fully employed once more. The result could not but be an improvement on this side; and some improvement has actually taken place, business having on the whole been somewhat better than it would have been if the American revival had not come about. But the stimulus was not sufficient to overcome the general languor and depression here, assisted as that languor and depression were by the other events which we have named. At the end of the year it cannot be said that people are much more hopeful than they were at the beginning, or that there is much more likelihood of steady improvement than there was then. The tone is, on the whole, more hopeful, and improvement is more likely to come, just because the depression has continued so long and has extended so far, so that it must be followed by the inevitable reaction. There are yet, however, no great signs of actual improvement having taken place.

"*The Fall of Prices.*

"One of the main signs of the continuance of the depression and the total want of recovery from it is undoubtedly the state of prices. At the end of the year, as compared with the beginning, there has been absolutely hardly any recovery from the exceedingly low prices of commodities established a year ago, which were themselves without precedent for many years. In wheat there was some advance in the earlier months of the year, owing partly to the apprehension of the outbreak of hostilities with Russia; but the price at the end of the year is found to be under what it was at the beginning, the fall being from about 31*s.* 6*d.* to 30*s.* per quarter. The *Gazette* average for oats and barley is also somewhat lower at the end of the year than at the beginning. Among food articles

there has been exceptionally a recovery in sugar from the extremely low prices touched a year ago, the rise being from about 10*s.* per cwt. for German beet at the beginning of the year, to a little over 15*s.* at the end of the year; but this last price, it must be considered, as compared with former experience, is still a very low price. In the metals there has been similar stagnation. The price of Scotch pig iron, which was just over 40*s.* a year ago, has in no way improved, prices having, in fact, with one or two exceptions when there was a speculative flurry, ranged between 40*s.* and 43*s.* all through the year, and at the present moment tending steadily to fall under 40*s.* Tin, lead, and spelter show a moderate improvement during the year, but the improvement is very slight, and the prices are all at a very low level. Copper shows a very remarkable decline indeed, the price at the beginning of the year for Chili bars having been very nearly 50*l.* per ton, while at the close of the year it was very little over 40*l.*, and actually in November the price was well under 40*l.*, these figures as regards copper being utterly witnout precedent. The price of copper still continues at this very low level. In the chemical trade the low level of prices also continues, there being a further remarkable decline in soda-ash, from about 2*l.* 15*s.* at the beginning of the year, to 2*l.* 7*s.* 6*d.* at the end of the year, these prices being altogether under the level for many years past. Among the raw materials of the textile trades there has also been a decided fall. Cotton, it appears, is now at a lower price than it has been since the year 1854, middling uplands being just under 5*d.* per lb. at the end of the year, the lowest price in 1879 having been about 5*d.* In wool the decline has been even more remarkable than in cotton, the peculiarity here being that wool has maintained its price comparatively during the previous years of depression, but has now all at once declined without those connected with the trade being able to give any explanation, except that the decline comes in order to place wool finally on a level with other articles. The difference is marked by the quotations for Sydney and Port Philip unwashed, the price of which at the beginning of 1885 was 11½*d.* per lb., and towards the end of the year was only 9*d.*, although there was a recovery at the close of the year to 9½*d.* In other descriptions of wool there has been even a greater fall. In other textiles, such as silk, jute, hemp, and flax, there is equally no recovery, but rather a tendency to decline still further. The usual table of prices in the Appendix will show how these low prices have continued throughout the year, and what small prospect there is of recovery. In accordance with these prices, and possibly as at once a cause and consequence of them, freights have been low throughout the year, and the shipping business in particular shows no sign of recovery.

"It would be needless to discuss in detail the causes of these low prices, and to show in each particular instance what the relation of stocks is to consumption, what is the capacity of production, and whether stocks have been increasing, and so on. The figures as to the foreign trade alone, which we have already given, and as to railway traffics, are quite sufficient to prove that

on the whole there must have been a diminution of production and consumption; and to some extent the low level of prices is the cause as well as the consequence of the languor in trade. The low prices, however, have continued so long that it has obviously become necessary for all concerned to consider more carefully than ever whether some general cause is not at work affecting prices, so that no recovery is really possible from the present low range. In the columns of the *Statist* it has frequently been pointed out that there is probably such a cause at work. The multiplication of commodities having gone on at a greater rate than the increase of the metal, gold—which is ultimately the basis of all transactions in gold-using countries—then, in spite of the fact that very great variations of prices may take place upon the basis of the same stock of gold, yet these variations have their limits; and when it comes to a question of reduction in the general level of prices, which has long continued and extends to almost every article, it seems to be beyond doubt that the diminution in gold, relatively to other articles, has something to do with the change in the level of prices. Accordingly we do not anticipate that there will be any material and general recovery from the present low range of prices. There will be ups and downs, as there have been in past times; but the oscillations will now be at lower levels than they were in the period between 1850 and 1874. Rents, wages, and money values of every kind in the course of time will be adjusted to the new state of things, and business may thus be expected to go on as before, but without that increase of nominal values from period to period to which business people before 1870 had been so long accustomed.

"*The Money and Stock Markets.*

"As was the case in the year 1884, the course of the money market during the year just passed has been somewhat peculiar. With low prices and trade depressed as it is, one would expect that continuously the rate in the discount market would be very low. At times in both years the rate was in fact 2 per cent., with hardly any demand for money. Nevertheless in each year this rate of 2 per cent. did not last more than a comparatively brief period, and at the end of 1884 it was succeeded by a 5 per cent. rate, while at the end of 1885 it was succeeded by a 4 per cent. rate. The explanation appears to be that in the world at the present time, notwithstanding some symptoms to the contrary, there is a real scarcity of the bullion necessary to support the money market if the former level of transactions is to be maintained. Just when everybody feels that money is easy, and is likely to remain easy, there being indeed little demand for money in its widest sense, that is capital, some little demand for cash springs up in one quarter or another, and in consequence the surplus of the market at once disappears. There can be no doubt that these flurries in the discount market react again on business, and contribute, *pro tanto*, to the depression. Business people lose confidence a little when they find that the cheap money on which they count when entering into transactions extending over a long period may dis-

appear at any moment, and in a way that is not to be easily explained. The stock markets are also affected. Under the influence of cheap money a strong and steadily supported rise ought fairly to be expected. especially at a time when there are comparatively few issues. The rise in American securities at one period of the year was in fact supported in this manner, and at one time it appeared likely that the stock markets generally would respond; but the condition of the money market, with these sudden alterations, is unfavourable on the whole to any such sustained rise in the stock markets as might be expected. and accordingly what would be another favourable influence on business is prevented.

"The drain of gold in the last few months has been to the East of Europe, and is supposed to be not unconnected with the preparations of governments for possible hostilities in the Balkan peninsula in the spring. So far the supposition that this may be the case has increased the unfavourable effect which the drain of gold by itself would have exercised.

"But we are inclined to think that the peculiar position of the money market, with its normal tendency to ease and its great liability to disturbance from a comparatively slight cause, is mainly responsible for the results upon business we have described. Until in fact the level of prices all round, including wages and profits, gets fully adjusted to the new state of things, it is to be expected that business from time to time will be checked in various ways. Until the condition of the money market becomes such that in a time of depression such as there has been lately a long continued period of 2 per cent. uninterrupted by any disturbance is established, we cannot expect the improvement in trade from cheap money which economists from long experience have been anticipating.

"*The Prospects for* 1886.

"We have already indicated our opinion sufficiently that the position at the end of 1885 is not materially changed from what it was at the end of 1884, and the actual prospects at the moment are substantially the same. It cannot be said with much more confidence than it could have been said a year ago that improvement in trade is at hand. People are still puzzled and bewildered, and there is not that confidence in the future, that readiness to go into new operations, which would lead one to say for certain that improvement cannot be long deferred. It is equally certain, however, that just because the depression has so long continued, and prices have been at a low level so long, while production and consumption have been on a large scale, that improvement now is only a question of weeks or months. The one distinction between the beginning of the present year and the beginning of 1885 is also that on the whole there is more hope, though not of a very ardent character, than there was then. The improvement in the United States, as far as it has gone, has done some good. If it were only possible to shake off the nightmare of the Irish difficulty and the still-apprehended troubles in the East of Europe, there seems to be little doubt that new undertakings would be commenced more

freely than they have been of late years, and that soon there would be some 'go' in business. These political differences, however, cannot but operate seriously, and until the current of improvement due to causes connected directly with business becomes stronger than it is, these outside influences will apparently have great effect in retarding that current. What we said a year ago on this head we have again to repeat. The main permanent difficulty in the way of improvement connected directly with the conditions of business is the fact that wages have not been completely adjusted to the new level of prices. What trade is suffering from is that the profits of the capitalist have been reduced to the vanishing point, and that accumulation has been to some extent diminished. Until the capitalist who runs the industrial machine is put in a better position, the exceeding languor and depression of all operations must prevail. How and in what way the adjustment of wages is to be effected remains to be seen. Workmen naturally resist the change which appears inevitable, although it is really only a money change, and there is no question of their getting into a less favourable position than they have been in for many years.

"All that can be said is that, however painful the process, the readjustment is an inevitable condition of a better state of trade and a fuller employment for the working classes generally. There are signs of a crisis in the question being at hand, some of the strongest unions, such as the journeymen engineers, having apparently exhausted their resources, or very nearly so, so that they can no longer resist the inevitable. It may be hoped that before utter exhaustion comes, workmen will be wise in time, and will permit the establishment of a state of things in which the capitalist will have some profit, and will have some inducement to lay out money upon new enterprises. At present, as we have already remarked, there is a vast amount of hand-to-mouth business, and production and consumption are really on a large scale. The masses of people in the United Kingdom, even in the present time of depression, are undoubtedly wealthy compared with what they were until a very recent period. There is wanting, however, a certain life and go in business, the absence of which is the cause of most of the complaints of depression, and what is wanted to that life and go is mainly that adjustment of money wages which we have described."

The following is the Index to the contents of the Supplement from which the foregoing extract is taken:—

Financial and Commercial History of 1885.

Introduction—The Events of the Year—The Fall of Prices—The Money and Stock Markets—The Prospects for 1886.

Extracts from Trade Circulars.

(*Illustrated with Diagrams showing the Course of Prices, &c.*

The Iron Trade—Engineering—Shipbuilding—Freights—Copper—Tin—Lead—Spelter—Coal—Chemicals—Tallow—Leather—

Petroleum—Wood—Turpentine—Indigo—Shellac. *Textiles, &c.*, Cotton—Wool—Silk—Linen—Jute—Hemp. *Food, &c.*, Wheat—Rice—Sugar—Tea—Coffee.

Foreign Trade of the Year 1885—Pauperism.

Tabular Appendix.

Bank Returns—
Bank of England—Bank of France—Imperial Bank of Germany—Austrian National Bank—Bank of the Netherlands—Associated New York Banks.

Public Revenue—Income Tax—Stock Exchange Securities, Prices of—Bullion—Allotments of India Council Bills in 1885—Government Drafts and Telegraphic Transfers—Indian Bank Rates.

Foreign Market Rates of Discount—Exchanges and Bullion.

Clearing House Returns—
London Bankers' Clearing House Returns—Stock Exchange Settling Days.

Savings Banks—Failures of 1885—Bills of Sale—Railway Traffic of 1885—Railway Dividends—Prices of Wholesale Commodities.

II.—*The Agricultural Returns for the Year* 1885.

The following summarised results of the Agricultural Returns, prepared by the Agricultural Department of the Privy Council, for the year 1885, are given (with summary tables as before) in continuation of a series of similar notices to be found in the Society's *Journal* for previous years:—

"The annexed tables contain the information, usually comprised in the agricultural returns of Great Britain, for the year 1885, with summary returns for Ireland for the same year. The data for Great Britain have been collected as in preceding years by the officers of the inland revenue department, while the figures for Ireland have been supplied to the agricultural department by the Registrar-General for Ireland. The particulars for the Isle of Man and the Channel Islands, which are included in the general totals, have been collected by officers under the direction of the respective governors of those districts. The returns were directed to be obtained in Great Britain, the Isle of Man, and the Channel Islands, as was the case in the previous year, on the 4th of June, and a summary, subject to corrections in the completed returns, was published in the London newspapers on the 15th of August; the returns with the summarised results thereof being now ready as early as it has been hitherto practicable to furnish them.

"It is proposed to notice, by a comparison of the figures for 1885 with those of preceding years, first the chief points suggested by those relating to Great Britain, to state the causes which have

been reported by the collectors generally to have led to the various changes shown in the returns, and to allude briefly to those for Ireland.

"In Great Britain the number of separate returns furnished by occupiers of land and of those obtained by estimates, where occupiers omitted to make returns, have been this year 557,293, and 4,991 from owners of live stock only, thus showing an increase of 878 in the case of occupiers of land, and of 56 owners of stock. The difference shown is not large, but it is of course no criterion that the holding of land has remained unchanged. The increased number of occupiers in some counties is ascribed by the collectors chiefly to subdivision of land. In other districts, however, the diminution of small holdings by amalgamation or absorption into large holdings is noticed. There are also the instances for which allowance must be made, as heretofore, in respect of the returns made by occupiers who have several holdings, either returning the required particulars separately, or on one schedule as may have been convenient to them, every effort being made by the departments concerned to render the filling up of the schedules as little troublesome as possible to farmers.

"It may be convenient to repeat here the explanation that the returns are ordered to be obtained from all occupiers of not less than a quarter of an acre of land, with the exception of that attached to houses as garden ground.

"In respect to the number of occupiers for whom recourse was had to estimates, the returns so obtained show an increase of 866, the total number being this year 20,493, as compared with 19,627 in 1884. The total acreage of the land in Great Britain estimated by the officers in default of returns in 1885 was 1,621,443, compared with 1,483,438 acres in the previous year, an increase of 138,000 acres. Although land which annually becomes the subject of estimate forms but a small percentage of the total, in the present year it is 5·0 per cent. of the entire cultivated area in Great Britain, so that the general results obtained are hardly in question, yet for the sake of greater accuracy where actual returns are made, it is important that the obligation to estimate should not increase as it has done this year.

"It appears that in Scotland the collectors are annually compelled to resort to estimates largely in the counties of Inverness, Ross and Cromarty, and Shetland. The explanation given by the officers as to the exceptions noticeable in these counties, however, is that an immense number of the smaller occupiers among whom land is here distributed, speak only Gaelic, and in parts of them are unacquainted with any other than the local measures in use among them, and that no satisfactory information would be otherwise obtainable. Pains are always taken to verify, so far as practicable, the estimates made, and in many cases the particulars entered in the returns are really the results derived from the statements made by crofters themselves to the collectors.

"In order to meet the desire so strongly urged upon the department, to procure information in reference to the number and weight of home-bred animals annually slaughtered for consump-

tion, a special return has this year been obtained as to the numbers of cattle, sheep, and pigs born between the 4th of June, 1884, and the 4th of June, 1885; of cattle, sheep, and pigs which died from disease or accident; and of cattle, sheep, and pigs which were slaughtered for meat on holdings during the period named.

"It is to be regretted that those who have been willing to furnish the desired particulars form so small a proportion of the total number of farmers to whom the schedules were sent, and who have in other respects completed their returns. The ratio, as explained in the note above the table, is less than two-fifths of the total number, and the results appear therefore to be quite incomplete as data for the object with which the inquiry was undertaken. The collectors report almost without exception that the request for such information has been universally disliked and often considered inquisitorial, and that it has caused annoyance even among those farmers who have supplied such particulars as they could give. It is added that numbers of them keep no records to enable them to furnish the details required, and that the information where afforded is therefore often not reliable. Moreover, it has unfortunately had the effect of deterring many from forwarding their usual return. In such cases delay has arisen and the necessity for estimates has been thereby increased, while no sufficient data appear to have been gained in the special return compiled from information so inadequate, to compensate for the general manifestation of feeling it occasioned. It is likewise one of those cases in which a partial return is misleading for the object in view, and therefore quite unsatisfactory as a basis for determining general results, as any attempt at estimating, from the peculiar character of the information wanted, would have been merely conjectural and useless.

"The following appear to be the general results of the returns which have been obtained for Great Britain: The area reported in 1885 to be under all kinds of crops, bare fallow, and grass, exclusive of heath and mountain land, and of woods and plantations, amounts to 32,544,000 acres as compared with 32,465,000 acres in the previous year, showing an increase of about 79,000 acres. The respective additions in each division are nearly 36,000 acres for England, under 9,000 acres for Wales, and about 34,000 acres for Scotland. Some small portion of the increase is doubtless due to the more accurate returns made by farmers, but the reports of the collectors state that the greater part is caused by the enclosure and reclamation of moor or heath and waste land in different parts of the country.

"In several counties variations occur which are said to be owing to farms that have changed their occupants when omissions through inadvertence of previous tenants have been discovered. Such omissions occasionally refer to large quantities of land, in spite of the care with which the rate books are examined by the officers each year, as the item *land* is sometimes stated to be only vaguely entered against occupiers' names without specifying the extent of the holdings, and the actual measurements of these are frequently only ascertained by occupiers when estates are sold and the land may be surveyed. Heath or mountain land has likewise,

it is found, been omitted after it has been taken into cultivation by farmers when it should have been included. The local measures of Scotland and Cheshire are still a slight cause of error in one or two counties, but less than formerly.

"There are also the usual differences, which do not, however, affect the aggregate cultivated area, accounted for by bordering farms being occasionally included in the collection of a particular county one year and in that of an adjoining county the next year. An apparent diminution in the East Riding of Yorkshire, amounting altogether to about 16,000 acres, is explained as being due this year to such interchanges with the West Riding.

"The collectors report in several counties instances of decreases in the extent under cultivation which have taken place owing to land previously agricultural being now appropriated to the construction of railways, and, in the neighbourhood of towns, to building purposes, wharfage, reservoirs for waterworks, cemeteries, &c. Land is also mentioned as being here and there out of cultivation.

"With regard to the details of particular crops in Great Britain the most noticeable features as regards corn crops, apart from the decrease in the total, seem to be that there is a considerable diminution of the area under wheat and an increase in that under barley and oats. The total quantity of land returned under wheat in the present year is 2,478,000 acres, or 198,000 acres (equal to 7·4 per cent.) less than in 1884, and a decrease of 134,800 acres (or 5·2 per cent.) as compared with 1883, when the breadth was less than had previously been recorded. The diminution of the area under wheat in 1885 is almost unanimously stated by the collectors to have been caused by the low prices obtainable for this grain in the autumn and winter of 1884, as the seed time was generally of a highly favourable character in most localities.

"They observe, likewise, that the tendency among farmers to devote more land year after year to breeding and grazing stock, as offering prospects of better results, has again greatly influenced the more limited acreage of this cereal in all districts where the nature of the soil and climate do not generally promise the probability of large crops, and the returns in the aggregate confirm the correctness of their statements. In reference to one or two counties, it is added that were it not for the imperative requirement of straw in which farmers still find an inducement to grow wheat, its diminution would there have been greater even than it is.

"The result, as shown in the falling off just referred to, appears to have been in great measure anticipated, inasmuch as early in the present year the estimates formed by some agricultural authorities predicted that in consequence of the unremunerative prices that had recently been obtainable for wheat, and in view moreover of the very large supplies of foreign wheat which were known to be available for export to this country, a reduction of more than 10 per cent. in the extent sown with winter wheat in England might this year be expected, but that it was possible some of this deficiency might be recovered in the further area to be sown during the spring. So far therefore the result is in tolerable

agreement with the early published opinions, and it is apparently only the natural outcome of a series of untoward harvests in Europe, thus stimulating production all over the world, in combination with abundant crops, and particularly, where this country is concerned, with the more than average yield of the harvest of 1884 in Great Britain, which there now seems every reason to expect will be repeated in the present year.

"The diminution shown in the acreage under wheat this year has been general in its distribution throughout Great Britain. In the county of Lincoln, however, there is an increase of 2,800 acres. In three other counties in England and the same number in Wales and Scotland respectively, where the usual area under this crop in these counties is, however, relatively small, its cultivation has been maintained, but the total increase in them altogether amounts to only 1,300 acres.

"In the three divisions of the kingdom the proportionate falling off from the acreage of the preceding year is for England 7·2 per cent., Wales 4·8 per cent., and Scotland 19·7 per cent. The disfavour into which wheat growing has come with farmers in Great Britain is especially evident in the agricultural returns, in which, although the acreage has fluctuated, yet commencing with 1871, its gradual contraction in alternate years is very noticeable.

"The area under barley in 1885 was 2,257,000 acres. This is an increase of about 88,000 acres, or 4·1 per cent. as compared with 1884; but it is to be observed that the present year's acreage is 34,000 acres, or 1·5 per cent. less than the acreage of 1883, and there are fewer acres by 165,000 than the average of the previous ten years.

"Oats were sown on 2,940,000 acres, only 25,000 acres, or 0·9 per cent. in excess of 1884. With the exception of the year 1883, however, it is a larger breadth than has been returned under this crop in any other year since these statistics have been collected. The substitution of barley, and to a smaller extent of oats for wheat, is frequently ascribed to the more remunerative prices obtainable for both these cereals.

"The acreage under rye shows an increase compared with 1884 of 3,800 acres, entirely in England. It is an unimportant crop, however, in this country. Beans have decreased by 12,000 acres, while peas correspond closely with the area so occupied last year. It is to be feared though that owing to the dry season the crop will this year have been picked from a smaller acreage.

"Altogether the total area under corn crops in 1885 is thus brought up to 8.392,000 acres, or 92,700 acres short of that in 1884, a decrease of 1·1 per cent., the average area of the preceding ten years having been 8,967,000 acres, or 575,000 more.

"As regards green crops in Great Britain in 1885, potatoes were planted on 548,000 acres, a decrease of 16,000 acres, or 2·9 per cent., as compared with 1884. Some of the reports attribute the lessened area planted to the reasons given for the deficient acreage of wheat, namely, the unremunerative prices caused by the large crops of last year. The variation, however, is only in ordinary course, as the acreage of 1885 has been but seldom exceeded.

"Turnips and swedes have declined; they were this year returned as grown on 2,015,000 against 2,027,000 acres in 1884. Mangold has increased by 27,000 acres, and vetches, lucerne, and other green crops unenumerated have increased by 35,000 acres. The total area of green crops thus amounts to 3,521,000 acres, an increase of nearly 34,000 over the figures of the preceding year.

"The extended acreage of sugar beet mentioned in last year's report as having been returned in Suffolk does not appear to have been continued. Those who are interested in the subject of sugar beet will find a table giving the latest available information relating to its production in foreign countries. It appears that the average yield per acre of all countries for the years embraced in the table is rather over 217 cwt. The rate of produce of sugar per cwt. of beetroot used being for Austro-Hungary and Germany, the only countries for which this information is available, taken together, about $10\frac{1}{4}$ lbs., while the total quantity of sugar produced per acre averages nearly a ton.

"The average value of sugar produced from an acre of beet (at import value in 1884, viz., 14*s.* 2*d.* per cwt.) appears to be about 14*l.* sterling.

"Of the minor crops flax was grown on 2,400 acres, a slight increase over 1884.

"Hops, notwithstanding the largely increased imports of 1884 as compared with those of the previous year, were planted on 71,000 acres, an increase of 2,000 acres, or 3·0 per cent., over 1884, and within 500 acres of the area so occupied in 1878, when the largest acreage was returned. The table given shows in detail the counties and certain districts in which hops are grown.

"Bare fallow in Great Britain has further decreased in a much greater measure this year than has been usual. The diminution is from 749,000 to 560,000 acres, a smaller area than in any year since 1875, when there were only 558,000 acres in fallow. The decrease is chiefly in England and Wales, and is said by the collecting officers to be owing to the more favourable seed time, the fine dry seasons in autumn and spring having at length enabled farmers to clean their land and bring it under the cultivation of seeds and grasses, or under pasture for stock purposes. In many localities the disposition among farmers thus to utilise all their available land is evident, as there is not a single county in England where diminution of the extent under fallow has not occurred.

"Clover and rotation grasses show a very considerable increase in Great Britain, their extent being 4,654,000 acres, or 272,000 acres more than in 1884. This extension, accompanied as it is this year by a much smaller relative increase than is usual of 51,000 acres in permanent pasture, appears to give significance to the statements in the reports of many of the officers that some confusion of mind has been occasioned by the sub-headings reintroduced into the schedules this year for the purpose of distinguishing the acreage of clover as well as of permanent grass, separately intended for hay, from that to be used as green fodder, with the view of ascertaining the estimated yield per acre of hay produced. These sub-headings showing the distinction here referred to were

formerly given up for the sake of simplification owing to representations that were made that they caused additional trouble to farmers, but they were again rendered necessary when the estimated yield per acre of these crops in hay was required. The particular classification to be made by occupiers generally in the schedules in distinguishing between land that is ultimately to be broken up and permanent grass has always been more or less a difficulty, especially as to land under rotation grasses for three or more years, and has often been the cause of inaccuracies which have only been discovered in succeeding years.

"On the other hand there are some few counties in which allusion is made to the circumstance that the more precise subdivision adopted in the schedules this year may have led to greater accuracy in the information, and that part of the variation shown is, in such cases, only apparent. Upon the whole it is considered that there may be some exaggeration in the quantities, more or less, under the respective heads of clover and permanent pasture, though it may be remarked that there are but very few counties in England and Wales where large relative additions to the former have not been made. As to the main fact of an important increase, taken together about 323,000 acres, in the extent of land covered by both clover and grass, there can, however, be no question that the returns properly represent the condition of agriculture in respect of the acreage so occupied in the present year.

"Much of the deficiency in the wheat acreage of this year, compared with 1884, has doubtless been thus appropriated, while the large quantity of land previously under fallow has also greatly contributed towards the aggregate shown, probably with a view to the land being eventually laid down in grass.

"Most of the reports of the officers agree in the information they furnish as to the continually increasing tendency among agriculturists towards making provision for greater numbers of cattle and sheep by laying down land in both clover and grass, and that the former appears to be much more in favour in many districts. The conversion of arable land to these purposes, instead of to corn crops, is still in the same direction as the general course of changes which have occurred in so marked a degree in recent years, and there can hardly be more conclusive evidence of this fact than the augmentation shown this year under these heads when taken together in the returns.

"The adoption of the system of ensilage may perhaps have been influential in determining the change, as the valuable properties attributed to clover and grasses for this purpose are alluded to by some of the collectors.

"As already mentioned, permanent pasture in Great Britain appears to have increased by only 51,000 acres over 1884, a smaller addition than has been returned in any year since 1870. The total extent is now shown to be 15,342,000 acres. Part of the addition is attributed as in preceding years to the enclosure of waste land before referred to, but chiefly to the causes mentioned in regard to the increase in live stock. It is to the circumstance

of the large increase shown in clover, &c., whereas the addition to permanent pasture is so much less than we have of late years been accustomed to see, that the contraction in the rate of normal increase of the latter has raised a doubt as to whether a portion of the acreage really belonging to the latter classification has not this year been erroneously entered by occupiers under the first named title, with the result of apparently augmenting the aggregate clover area, and making the addition to permanent grass smaller than we now annually look for. The change is the more striking inasmuch as the local collecting officers seldom refer to any large quantities of pasture as having this year been broken up in order to lay the land down in clover, sanfoin, or rotation grasses. On the other hand there are occasionally statements to the effect that, owing to the late dry spring, much clover land in some districts remained unbroken up this year, in view of possible scarcity, later, in the growth of sheep-keep. The respective figures are being carefully inquired into, and meanwhile they remain subject to correction.

"Passing from the comparison of the results of the present year in Great Britain, as compared with 1884, in regard to permanent pasture, to those presented in the rate at which it has progressed in England, in which division of Great Britain the major portion of the augmentation under the latter head has occurred, a reference to the acreage added to the total cultivated area, and to the increased quantity of land placed under permanent pasture since 1880, shows that while the total extent of land under cultivation in England has been enlarged by 284,040 acres, or in the proportion of 1·15 per cent., the addition to permanent pasture, notwithstanding the smaller addition of the present year, has been no fewer than 767,950 acres, or 6·70 per cent. in the five years. The rate at which this progression has taken place has varied from 1·69 per cent. in 1881 to 0·26 per cent. in 1885, the average rate of the previous four years ending 1884 having been 1·56 per cent.

"The area of land appearing under arable in Great Britain in 1885, in consequence of the addition to the clover area, is this year more by nearly 27,000 acres, about 17,202,000 acres being returned against 17,175,000 in 1884. The relative proportions of the whole quantity of land cultivated in Great Britain are now: 47·1 per cent. under permanent pasture, 14·3 per cent. under clover and rotation grasses, 25·8 per cent. under corn crops, and 10·9 per cent. under green crops.

"There is a further increase this year of 2,800 acres in the area of orchards in Great Britain, it being now 197,539 acres. Many of the collectors refer to new plantations of fruit trees, of all descriptions, in consequence of the continually growing demand for fruit in the large towns. Part of the addition is, however, owing to ground so occupied having been previously returned as under grass only, without including it, as it should have been, under orchards also. It appears that rate books, if consulted, do not always show the acreage of orchards, except where they are separately assessed, so that omissions under this head are not easily discovered. Market gardens have likewise extended, more

land being annually appropriated to their produce for the growth of strawberries and bush fruits as well as with the object of increasing the supply of fresh vegetables.

"The acreage under market gardens is, this year, 59,473 acres as compared with 52,975 acres in 1884.

"For land used by nurserymen for the growth of trees, shrubs, &c., the returns for 1885 show practically the same acreage as last year.

"The extent occupied by woods and plantations will be found in the table relating to orchards, &c. As mentioned in former reports, it does not vary greatly from year to year. Annual returns are not therefore obtained for it, and the acreage, as ascertained in 1881, is again inserted for Great Britain in 1885.

"Turning now to the various kinds of live stock in Great Britain, it is satisfactory to find that there is a noteworthy increase in cattle. Sheep and lambs show a proportionately smaller addition, but in pigs there is a considerable decrease. There is a further decline of 14,000 in agricultural horses, accounted for in the same manner as was the reduction in the numbers of this class in 1884 compared with the previous year, namely, the diminished need of them owing to the smaller quantity of land under corn crops, and the more general use of steam applied to agricultural cultivation, enabling farmers thus to economise labour. The deficiency is, however, not made up, as was then the case, by the increase in unbroken horses and mares, returned as kept solely for breeding, which have only increased by about 9,000. The imports of foreign horses in 1884 increased in number over those of 1883, and so far in the present year this position has been proportionately maintained, while the exports have declined. There is, however, a great difference between the value per head of horses imported and those exported, the former averaging in 1884 19*l.* 17*s.* 2*d.*, while those last mentioned averaged 58*l.* 7*s.* 1*d.* each.

"As regards horned cattle, the numbers exhibit an important increase in each of the several classes, the total number being now 6,597,964, or 328,823 (equal to 5·2 per cent.) more than in 1884, and 635,185 (or 10·7 per cent.) more than in 1883, the figures of the present year being the largest yet recorded for cattle in these returns. Cows and heifers in milk or in calf have increased in Great Britain by 139,334 or 5·8 per cent. Other cattle of 2 years of age and above number 1,465,505 or 5·7 per cent. more, and young cattle have increased by 110,317 or 4·4 per cent.

"The increase in milking cows appears, from the reports, to be due to more general recognition of the value of dairy farming, that it is, at any rate, a fairly profitable branch of agriculture, especially where the proximity of large centres of population or of railways provide available markets for the disposal of the produce. The larger number of young cattle would appear to have followed in usual course that of the class just noticed, while the addition to 2 year old cattle at the period of the annual census is ascribed by the officers to the continued preference for rearing and feeding live stock instead of corn growing, and there is occasional mention confirming it, in respect to England, that

farms lately in the hands of owners have been again re-let and stocked. In many counties, however, the low prices lately obtainable have, it appears, induced farmers who have sufficient capital to hold over large numbers in the hope of improved market value, and this is said to have materially increased the numbers in such localities.

"Sheep and lambs taken together show this year an increase of 466,000 over the numbers in 1884, distributed in an addition to sheep of 1 year and above of 152,700 and of 313,500 to sheep under 1 year, the total number being now 26,534,000.

"In reference to the relatively small increase in sheep shown in the returns for Great Britain, not quite 1 per cent., it may be remarked that sheep in Scotland have suffered a decline of 29,000 as compared with last year, while the increase in the number of lambs is only about 3,000, and in many of the eastern counties of England, notably those of Lincoln, Norfolk, and the East Riding of Yorkshire, the diminution in sheep has been proportionately as great. The collectors mention the scarcity of keep in the early part of the year, compelling farmers to dispose of their sheep, as one of the main causes which have contributed to it, but that agricultural depression and the low prices obtainable have also been in some localities important factors in the result. Following closely upon the large increase of last year, a similar increase could hardly have been expected.

"The lambing season is stated to have been generally favourable, and it seems that this has in a few districts prevented the appearance of a still larger number in the returns, for, lambs being ready earlier for market, farmers were induced to realise their value. There are counties where severe losses have been sustained owing to wet and cold weather in the spring, in hilly districts and in Scotland, where large numbers died from exposure and insufficient food. In the county of Inverness no less than 15,000 sheep and lambs were disposed of in a few localities where land has been converted to purposes other than agriculture. Fluke or liver rot is also referred to as being partly a reason of decrease in this county.

"There is a further decline of 181,000 or 7 per cent. in the number of pigs in Great Britain, the total being now 2,403,000. The prevalence of swine fever in a great many counties is stated to have caused serious loss, and to have thus been the chief source of the decrease, but the collectors cite also the competition of foreign bacon and pork as contributing to it, notwithstanding the cheapness of pig food. Although the quantities of this description of meat imported in 1884 were less than those in 1883, it appears that in the first eight months of the present year the total importation of bacon, hams, and pork from all countries has amounted to 3,068,792 cwts., which is in excess of the imports of the same period in 1884 by 522,441 cwts.

"The number of poultry in Great Britain as returned in 1885, exclusive of those kept in towns or by cottagers with less than a quarter of an acre of land, is 15,963,000 as compared with 16,061,000 in 1884, a decrease of 98,000 on the total of the

several kinds of poultry included in the returns. It was pointed out in last year's report that the number of poultry in Ireland exceeded that in England, and as the numbers in Ireland have since increased by over a million, the contrast then alluded to is still more remarkable.

"It appears probable, however, that in Great Britain the figures do not in some counties, even approximately, represent the actual number kept, as the officers direct attention to the untrustworthy character of many of the returns in this respect. It is mentioned that farmers are very unwilling to give these details when asked to do so, and will not take any pains to insert them correctly in the schedules.

"These returns as to poultry may, however, improve when it is found that no injury is sustained by those who give fairly accurate information. In comparing the numbers returned in England and Ireland respectively, it should be remembered that the Irish returns embrace poultry kept by occupiers of all holdings, whereas those obtained for Great Britain include only such as are furnished by occupiers of a quarter of an acre of ground or more.

"The increase in the imports of poultry and eggs in the last few years, as shown by the values in a table appended to this report, show that there is scope for effort in this minor branch of agriculture.

"In the returns of the crops and live stock in Ireland the following changes are to be noticed. Instead of an increase there is a decrease in the cultivated area. The diminution extends to corn crops, green crops, and permanent pasture, while flax and rotation grasses each show a relatively large increase. As regards corn crops, wheat was sown in 70,800 acres, a slight increase over the breadth of last year, when 69,000 acres were under this crop. Barley is likewise greater by 12,000 acres, but there is a decline in oats of 19,000 acres, as they covered only 1,328,000 acres compared with 1,347,000 in the preceding year, making altogether with the minor corn crops a total area of 1,594,000 against 1,599,000 in 1884.

"Among green crops the potato acreage is practically unchanged, 797,000 acres having been so planted. Turnips were less, however, by 7,000 acres, occupying 297,000 acres against 304,000 in 1884. Mangold, cabbage, kohl-rabi, and rape, together with vetches and other green crops, except carrots, slightly increased, the total amounting to 1,218,800 acres compared with 1,221,400 acres in the previous year, and leaving a net decrease of 2,600 acres under these crops.

"A noticeable feature is the increase in flax, which was grown on 108,000 acres, or 19,000 acres over the acreage of the previous year. The land returned under bare fallow was less by nearly 4,500 acres.

"Clover, sainfoin, and rotation grasses show a further increase of 70,000 acres. On the other hand, there is a decrease in permanent pasture of 100,000 acres, the area of the latter being now 10,246,000 acres as against 10,346,000 in 1884.

"It will thus be seen that the extended acreage under clover and rotation grasses with the increase in flax do not counter-

balance the decrease in the corn and green crops together with the large reduction apparent in the area under permanent grass, so that the cultivated area in Ireland shows the diminution in the past year of 23,800 acres. The area being now 15,219,000 acres compared with 15,242,800 in the preceding year.

"As regards live stock in Ireland, horses have increased from 480,846 in 1884 to 491,147 in 1885. The several descriptions of cattle are also greater in number.

"Milking cows and heifers show an increase of 61,026, or 4·5 per cent. over 1884. Other cattle 2 years old and above are more by 27,582, or nearly 3 per cent., and young cattle have advanced from 1,834,906 to 1,862,782, or 1·5 per cent., making the total number of cattle 4,228,751 or 2·8 per cent. more than last year.

"Sheep and lambs have both increased. The numbers are together 3,477,840 or 234,268 over 1884. The number of sheep being now 2,138,298, and of lambs 1,339,542.

"Pigs on the other hand are fewer by 2·8 per cent., as there are this year only 1,269,122 against 1,306,195 in 1884, a decrease of 37,073.

"The number of poultry has increased from 12,746,000 in 1884 to 13,849,000 in 1885.

"Taking the figures for the whole of the United Kingdom, including the Isle of Man and the Channel Islands, it will be observed that there is an increase over the returns of last year of 54,000 acres as regards the total cultivated area. Corn crops have a less acreage, while green crops have a larger one. There is an important extension in rotation grasses due to large additions in each division of the United Kingdom, but permanent pasture for the first time since 1870 has diminished in area by about 51,000 acres, owing to the decreased acreage under this head returned for Ireland.

"Cattle and sheep have again increased considerably in number, but in pigs there is a further decline both in Great Britain and Ireland.

"The following table shows a comparison of the figures for the United Kingdom, including the Isle of Man and the Channel Islands, between the years 1884 and 1885:—

Acreage.	1885.	1884.	1885 compared with 1884.	
			Increase.	Decrease.
	Acres.	Acres.	Acres.	Acres.
Total cultivated area	47,895,770	47,840,977	54,793	—
Total of permanent pasture	25,616,071	25,667,206	—	51,135
„ arable land	22,279,699	22,173,771	105,928	—
Corn crops	10,014,625	10,113,264	—	98,639
Green „	4,765,195	4,733,860	31,335	—
Clover, &c., under rotation	6,738,206	6,392,402	345,804	—
Flax	110,639	91,444	19,195	—
Hops	71,327	69,259	2,068	—
Bare fallow	579,707	773,542	—	193,835

Live Stock.	1885.	1884.	1885 compared with 1884.	
			Increase.	Decrease.
	Nos.	Nos.	Nos.	Nos.
Horses	1,909,200	1,904,515	4,685	—
Cattle	10,868,760	10,422,762	445,998	—
Sheep	30,086,200	29,376,787	709,413	—
Pigs	3,686,628	3,906,205	—	219,577
Turkeys	1,288,174	1,210,343	77,831	—
Geese	3,029,137	2,783,237	245,900	—
Ducks	5,080,325	5,006,711	73,614	—
Fowls	20,542,564	19,943,958	598,606	—

"The usual table prepared for this report showing the relative course of agriculture in the counties of England, arranged in two divisions of chiefly grazing and chiefly corn-growing counties, has next to be noticed.

"With a view to increase the usefulness of these returns the comparative tables in continuation of parliamentary returns that have been prepared from time to time in consequence of special demands which have arisen, have again been included among them together with the additions made last year. These are now supplemented by others embracing and expanding the information formerly given in the tables, besides giving other particulars which can hardly fail to be of interest on points in which agriculturists are concerned. The imports of animals, of quantities of meat of all kinds, and the various countries whence the supplies are derived, the respective values per head of animals imported, the prices of certain agricultural produce, and other particulars are herein shown.

"In a few cases the tables have been rearranged, and summaries inserted for the purpose of giving the general results more clearly, and at the same time of rendering the information as complete as has been practicable.

"The interest taken at present in the subject of silos and ensilage has induced the department to obtain further information in regard to them, and a table relating to the number of silos constructed in Great Britain for the ensilage of fodder as returned to June, 1885, containing similar information to that of last year, and arranged for comparison with the results then shown, has been included, showing the counties in which the silos are situate. It appears that the number has greatly increased, there being now 1,183 in Great Britain as compared with 610 in 1884, while their total capacity has increased by 1,451,362 cubic feet, and others are said to be in course of construction.

"Moreover, in accordance with the proposal adverted to in last year's report, forms were issued by the department to all persons who had been ascertained to possess silos in various districts in Great Britain, for the purpose of affording, in replies to a schedule of questions, framed upon the experience already gained in regard to this subject, information that should be of value to those

interested in it. To the questions put by the agricultural department a large number of replies were received, and, as it was considered that some of these would have influence with agriculturists who have themselves already made experiments in this direction, as well as with those who are contemplating the construction of new silos, the permission to allow the publication of their names with the statements furnished, was obtained from the majority of those who contributed them. These will be ready about the same time as the present agricultural returns, but as they were rather too voluminous in character to be conveniently included among them, they will be published as a separate parliamentary paper.

"A series of reports on insects injurious to hop plants, corn crops, and fruit crops in Great Britain are also in the course of preparation for the agricultural department by Mr. Charles Whitehead, F.L.S., F.G.S., who voluntarily undertook this work in consequence of a question put by Mr. Rankin to the Chancellor of the Duchy of Lancaster in the House of Commons in the month of May last. No. 1 of the series—insects injurious to hop plants—has been already issued in the form of a Parliamentary paper [C–4534], and the reports relating to insects injurious to corn crops and fruit crops will, it is hoped, be ready shortly. These will be followed by a report upon insects injurious to root crops, which is promised early in the ensuing year.

"Tables relating to the crops and live stock in British possessions and in foreign countries are again inserted, and contain through the courtesy of the officers of the Board of Trade who have supplied it, the latest official information in each case available. The most recent returns which have been received, showing the extent of the agricultural resources of the various British possessions in which agricultural statistics are published, are given.

"Arrangements have been again made by the agricultural department for ascertaining approximately the yield of the corn and certain other crops in Great Britain in the present year. The collection of these statistics will be still more complete in its character than it was in 1884, owing to the fact that an increased number of estimators will be employed, and the wider scope of the inquiry thereby made practicable. The statistics will embrace particulars as to one or two other crops, and it is proposed to give the data for each separate county.

"The returns will not be received until the end of November, and will subsequently entail considerable labour in their compilation, but they will then be published with as little delay as possible."

APPENDIX.

TABLE A.—*Total Area and Acreage under each kind of Crop, Bare Fallow, and Grass; the Years* 1885 *and* 1884 *in each Division of Great Britain, with similar*

[000's omitted.]

	England.		Wales.		Scotland.	
	1885.	1884.	1885.	1884.	1885.	1884.
Total area of land and water	Acres. 32,597,	Acres. 32,597,	Acres. 4,722,	Acres. 4,722,	Acres. 19,467,	Acres. 19,467,
	ACREAGE UNDER CORN CROPS, GREEN					
Total acreage under crops, bare fallow, and grass ...	24,880,	24,844,	2,818,	2,810,	4,846,	4,812,
Corn Crops—						
Wheat	2,349,	2,531,	74,	78,	55,	69,
Barley or bere	1,894,	1,808,	125,	130,	238,	230,
Oats	1,648,	1,620,	247,	249,	1,046,	1,046,
Rye	42,	38,	1,	2,	7,	7,
Beans	409,	422,	3,	3,	23,	22,
Peas	227,	226,	2,	2,	2,	2,
Total acreage under corn crops	6,569,	6,645,	452,	464,	1,371,	1,376,
Green Crops—						
Potatoes	359,	360,	41,	41,	149,	164,
Turnips and swedes	1,461,	1,472,	69,	71,	484,	485,
Mangold	346,	319,	7,	7,	2,	1,
Carrots	15,	12,	—	—	1,	1,
Cabbage, kohl-rabi, and rape	146,	140,	2,	1,	6,	6,
Vetches and other green crops (*b*)	411,	384,	5,	5,	18,	18,
Total acreage under green crops	2,738,	2,687,	124,	125,	660,	675,
Clover, sainfoin, and grasses under rotation (*a*)	2,750,	2,545,	332,	310,	1,572,	1,526,
Permanent pasture or grass not broken up in rotation (*a*) (*c*)	12,230,	12,198,	1,893,	1,886,	1,220,	1,207,
Flax	2,	2,	—	—	—	—
Hops	71,	69,	—	—	—	—
Bare fallow or uncropped arable land	519,	698,	18,	24,	23,	28,
	NUMBER OF LIVE STOCK, AS RETURNED UPON					
Horses (*d*), as returned by occupiers of land—	No.	No.	No.	No.	No.	No.
Used solely for purposes of agriculture	763,	775,	72,	73,	141,	143,
Unbroken horses and mares kept solely for breeding	318,	312,	68,	67,	47,	45,
Total number of horses	1,081,	1,087,	140,	140,	188,	188,
Cattle—						
Cows and heifers in milk or in calf	1,831,	1,715,	280,	267,	419,	409,
Other cattle—						
2 years old and above	1,082,	1,026,	123,	112,	261,	248,
Under 2 years old	1,800,	1,711,	306,	302,	496,	480,
Total number of cattle	4,713,	4,452,	709,	681,	1,176,	1,137,
Sheep—						
1 year old and above	10,130,	10,010,	1,848,	1,786,	4,560,	4,589,
Under 1 year old	6,680,	6,418,	920,	871,	2,397,	2,394,
Total number of sheep	16,810,	16,428,	2,768,	2,657,	6,957,	6,983,
Pigs (*h*)	2,037,	2,207,	216,	217,	151,	160,
Poultry (*h*)—						
Turkeys	356,	374,	58,	62,	61,	64,
Geese	616,	626,	234,	226,	35,	37,
Ducks	1,737,	1,888,	206,	217,	259,	264,
Fowls	9,556,	9,497,	875,	864,	1,970,	1,942,
Total number of poultry	12,265,	12,385,	1,373,	1,369,	2,325,	2,307,

(*a*) For the acreage of grass, clover, &c., grown for hay and of that not for hay, separately distinguished, see Table VI.
(*d*) Including ponies. (*c*) Furnished by the registrar-general for Ireland.
(*h*) With the exception of those for Ireland, the number of pigs and poultry are exclusive

APPENDIX.

and Number of Horses, Cattle, Sheep, Pigs, and Poultry as returned upon the 4th June in Particulars for Ireland (e), and with Total for the United Kingdom.

[000's omitted.]

Great Britain.		Ireland.		United Kingdom, including Isle of Man and Channel Islands.		
1885.	1884.	1885.	1884.	1885.	1884.	
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
56,786,	56,786,	20,820,	20,820,	77,800,	77,800,	Total area of land and water
CROPS, BARE FALLOW, GRASS, &c.						
32,544,	32,466,	15,219,	15,243,	47,896,	47,841,	Total acreage under crops, bare fallow, and grass
						Corn Crops—
2,478,	2,677,	71,	69,	2,553,	2,750,	Wheat
2,257,	2,169,	180,	167,	2,447,	2,346,	Barley or bere
2,941,	2,915,	1,328,	1,347,	4,283,	4,277,	Oats
51,	47,	8,	7,	60,	54,	Rye
435,	447,	6,	8,	441,	455,	Beans
230,	230,	1,	1,	231,	231,	Peas
8,392,	8,485,	1,594,	1,599,	10,015,	10,113,	Total acreage under corn crops
						Green Crops—
549,	565,	797,	799,	1,356,	1,374,	Potatoes
2,015,	2,028,	297,	304,	2,322,	2,343,	Turnips and swedes
355,	327,	(*f*) 37,	(*f*) 35,	393,	363,	Mangold
17,	14,	(*g*) 3,	(*g*) 3,	20,	17,	Carrots
153,	147,	48,	45,	201,	192,	Cabbage, kohl-rabi, and rape
433,	407,	37,	35,	473,	445,	Vetches and other green crops (*b*)
3,522,	3,488,	1,219,	1,221,	4,765,	4,734,	Total acreage under green crops
4,654,	4,381,	2,033,	1,963,	6,738,	6,392,	Clover, sainfoin, and grasses under rotation (*a*)
15,342,	15,291,	10,246,	10,346,	25,616,	25,667,	Permanent pasture or grass not broken up in rotation (*a*) (*c*)
2,	2,	108,	89,	111,	91,	Flax
71,	69,	—	—	71,	69,	Hops
560,	750,	19,	24,	580,	774,	Bare fallow or uncropped arable land
THE 4TH JUNE IN THE YEARS 1885 AND 1884.						
No	No.	No.	No.	No.	No.	Horses (*d*), as returned by occupiers of land—
976,	990,	—	—	—	—	Used solely for purposes of agriculture
433,	424,	—	—	—	—	Unbroken horses and mares kept solely for breeding
1,409,	1,414,	491,	481,	1,909,	1,905,	Total number of horses
						Cattle—
2,530,	2,391,	1,418,	1,356,	3,966,	3,765,	Cows and heifers in milk or in calf
						Other cattle—
1,466,	1,386,	948,	921,	2,419,	2,312,	2 years old and above
2,602,	2,492,	1,863,	1,835,	4,484,	4,346,	Under 2 years old
6,598,	6,269,	4,229,	4,112,	10,869,	10,423,	Total number of cattle
						Sheep—
16,538,	16,385,	2,138,	2,027,	18,717,	18,448,	1 year old and above
9,997,	9,683,	1,540,	1,217,	11,369,	10,929,	Under 1 year old
26,535,	26,068,	3,478,	3,244,	30,086,	29,377,	Total number of sheep
2,403,	2,584,	1,269,	1,306,	3,687,	3,906,	Pigs (*h*)
						Poultry (*h*)—
475,	501,	811,	707,	1,288,	1,210,	Turkeys
885,	888,	2,134,	1,883,	3,029,	2,783,	Geese
2,202,	2,368,	2,861,	2,619,	5,080,	5,007,	Ducks
12,401,	12,304,	8,043,	7,537,	20,543,	19,944,	Fowls
15,963,	16,061,	13,849,	12,746,	29,940,	28,944,	Total number of poultry

(*b*) Except clover and grass, which are separately shown. (*c*) Exclusive of heath and mountain land.
(*f*) Including beet root. (*g*) Including parsnips.
of those kept in towns, and by cottagers with less than a quarter of an acre of land.

TABLE B.—*Average Proportion per* 1,000 *Acres of Cultivated Land of the Acreage Kind of Live Stock in*

	England.		Wales.		Scotland.	
	1885.	1884.	1885.	1884.	1885.	1884.
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres.
Total of all crops, bare fallow, and grass	1,000	1,000	1,000	1,000	1,000	1,000
Total of permanent pasture or grass not broken up in rotation*	492	491	672	671	252	251
Total of arable land	508	509	328	329	748	749
Corn Crops—						
Wheat	95	102	26	27	11	14
Barley or bere	76	73	45	46	49	48
Oats	66	65	87	89	216	217
Rye	2	2	‖ —	1	2	2
Beans	16	17	1	1	5	5
Peas	9	9	1	1	‖ —	‖ —
Total of corn crops	264	268	160	165	283	286
Green crops—						
Potatoes	14	14	14	15	31	34
Turnips and swedes	59	59	25	25	100	101
Mangold	14	13	3	2	‖ —	‖ —
Carrots	1	1	‖ —	‖ —	‖ —	‖ —
Cabbage, kohl-rabi, and rape	6	6	‖ —	1	1	1
Vetches and other green crops†	16	15	2	2	4	4
Total of green crops	110	108	44	45	136	140
Clover, sainfoin, and grasses under rotation	110	102	118	110	324	317
Flax	‖ —	‖ —	‖ —	‖ —	‖ —	‖ —
Hops	3	3	—	—	—	—
Bare fallow or uncropped arable land	21	28	6	9	5	6
	NUMBER OF EACH KIND OF LIVE STOCK					
Horses,‡ as returned by occupiers of land—	No.	No.	No.	No.	No.	No.
Used solely for purposes of agriculture	30	31	26	26	29	30
Unbroken horses and mares kept solely for breeding	13	13	24	24	10	9
Total of horses	43	44	50	50	39	39
Cattle—						
Cows and heifers in milk or in calf	74	69	99	95	87	85
Other cattle—						
2 years old and above	43	41	44	40	54	51
Under 2 years old	72	69	109	107	102	100
Total of cattle	189	179	252	242	243	236
Sheep—						
1 year old and above	407	403	655	636	941	954
Under 1 year old	269	258	327	310	495	497
Total of sheep	676	661	982	946	1,436	1,451
Pigs§	82	89	77	77	31	33
Poultry§—						
Turkeys	14	15	20	22	13	13
Geese	25	25	83	80	7	8
Ducks	70	76	73	77	53	55
Fowls	384	382	311	308	407	404
Total of poultry	493	498	487	487	480	480

* Exclusive of heath and mountain land. † Except clover and grass, which are separately shown.
‖ Less than half an acre per 1,000 acres of cultivated land.

under each Kind of Crop, Bare Fallow, and Grass, and of the Number of each the Years 1885 *and* 1884.

Great Britain.		Ireland.		United Kingdom.		
1885.	1884.	1885.	1884.	1885.	1884.	
Acres. 1,000	Acres. 1,000	Acres. 1,000	Acres. 1,000	Acres. 1,000	Acres. 1,000	Total of all crops, bare fallow, and grass
471	471	673	679	535	537	Total of permanent pasture or grass not broken up in rotation *
529	529	327	321	465	463	Total of arable land
76	82	5	5	53	57	Corn Crops Wheat
70	67	12	11	51	49	Barley or bere
90	90	87	88	90	89	Oats
2	1	1	‖ —	1	1	Rye
13	14	‖ —	1	9	10	Beans
7	7	‖ —	‖ —	5	5	Peas
258	261	105	105	209	211	Total of corn crops
17	17	53	53	29	29	Green crops— Potatoes
62	63	20	20	49	49	Turnips and swedes
11	10	¶ 2	¶ 2	8	8	Mangold
1	‖ —	‖ —	‖ —	‖ —	‖ —	Carrots
5	5	3	3	4	4	Cabbage, kohl-rabi, and rape
13	13	2	2	10	9	Vetches and other green crops †
109	108	80	80	100	99	Total of green crops
143	135	134	129	141	134	Clover, sainfoin, and grasses under rotation
‖ —	‖ —	7	6	2	2	Flax
2	2	—	—	1	1	Hops
17	23	1	1	12	16	Bare fallow or uncropped arable land

PER 1,000 ACRES OF CULTIVATED LAND.

No.	No.	No.	No.	No.	No.	Horses, ‡ as returned by occupiers of land—
30	31	—	—	—	—	Used solely for purposes of agriculture
13	13	—	—	—	—	Unbroken horses and mares kept solely for breeding
43	44	32	32	40	40	Total of horses
78	73	93	89	83	79	Cattle— Cows and heifers in milk or in calf
45	43	62	61	50	48	Other cattle— 2 years old and above
80	77	123	120	94	91	Under 2 years old
203	193	278	270	227	218	Total of cattle
508	505	141	133	391	386	Sheep— 1 year old and above
307	298	88	80	237	228	Under 1 year old
815	803	229	213	628	614	Total of sheep
74	80	83	86	77	82	Pigs §
15	16	53	46	27	25	Poultry §— Turkeys
27	27	140	124	63	58	Geese
68	73	188	172	106	105	Ducks
381	379	529	494	429	417	Fowls
491	495	910	836	625	605	Total of poultry

‡ Including ponies.

¶ Including beet root.

§ See note (*h*) to Table A.

TABLE C.—*Total Acreage under each kind of Crop, Bare Fallow, and Grass; and Number inclusive; and the Yearly Averages of the Four Years from* 1867

(The total area of land and water in the

['000's omitted.]

	Yearly Averages.		1876.	1877.	1878.	1879.
	1867-70.	1871-75.				
	Acres.	Acres.	Acres.	Acres.	Acres.	Acres
Total acreage under crops, bare fallow, and grass.....	45,829,	46,984,	47,401,	47,264,	47,327,	47,437,
Total acreage of permanent pasture or grass not broken up in rotation (exclusive of heath or mountain land).....	22,278,	23,236,	24,053,	23,903,	24,065,	24,396,
Total acreage of arable land	23,551, †	23,748,	23,348,	23,361,	23,261,	23,041,
Corn Crops—						
Wheat.....	3,837,	3,787,	3,125,	3,321,	3,382,	3,056,
Barley or bere	2,474,	2,599,	2,762,	2,652,	2,723,	2,932,
Oats	4,449,	4,233,	4,299,	4,239,	4,124,	3,938,
Rye.....	66,	68,	65,	71,	71,	58,
Beans	353,	565,	529,	507,	446,	454,
Peas	333,	342,	295,	313,	284,	279,
Total acreage under corn crops.....	11,712,	11,544,	11,075,	11,103,	11,030,	10,777,
Green Crops—						
Potatoes.....	1,590,	1,507,	1,392,	1,393,	1,365,	1,393,
Turnips and swedes	2,519,	2,476,	2,500,	2,419,	2,372,	2,342,
Mangold.....	298,	378,	397,	408,	389,	415,
Carrots	19,	21,	20,	20,	19,	21,
Cabbage, kohl-rabi, and rape	176,	221,	221,	230,	219,	209,
Vetches, and other green crops (except clover or grass)	395,	471,	428,	492,	468,	492,
Total acreage under green crops	4,997,	5,074,	4,958,	4,962,	4,832,	4,872,
Clover, sainfoin, and grasses under rotation	5,710,	6,291,	6,441,	6,460,	6,558,	6,451,
Flax.....	231, ‡	136,	141,	131,	119,	135,
Hops	63,	64,	70,	71,	72,	68,
Bare fallow or uncropped arable land	832,	640,	663,	633,	650,	738,
			NUMBER OF LIVE STOCK			
Horses (including ponies), as returned by occupiers of land—	No.	No.	No.	No.	No.	No.
Used solely for purposes of agriculture	—	—	—	—	—	—
Unbroken horses and mares kept solely for breeding	—	—	—	—	—	—
Total number of horses	—	1,820, §	1,863,	1,894,	1,927,	1,955,
Cattle—						
Cows and heifers in milk or in calf	—	—	3,775,	3,745,	3,709,	3,736,
Other cattle—						
2 years old and above	—	—	2,500,	2,348,	2,357,	2,250,
Under 2 years old.....	—	—	3,720,	3,639,	3,695,	3,975,
Total number of cattle	9,032,	9,932,	9,995,	9,732,	9,761,	9,961,
Sheep—						
1 year old and above	—	—	20,879,	20,719,	20,684,	20,780,
Under 1 year old	—	—	11,384,	11,501,	11,887,	11,458,
Total number of sheep	34,116,	33,192,	32,263,	32,220,	32,571,	32,238,
Pigs*	3,552,	3,782,	3,734,	3,984,	3,768,	3,178,

* With the exception of those for Ireland (included in the above) the numbers of pigs are

† The average acreage of arable land in 1867-70 will not agree with the total of the several

‡ Average of the three years 1868-70.

of each kind of Live Stock returned in the United Kingdom in each Year from 1876 *to* 1885 *to* 1870, *and of the Five Years from* 1871 *to* 1875 *inclusive.*

United Kingdom is 77,799,793 acres.)

[000's omitted.]

1880.	1881.	1882.	1883.	1884.	1885.	
Acres.	Acres.	Acres.	Acres.	Acres.	Acres.	
47,587,	47,646,	47,655,	47,667,	47,841,	47,896,	Total acreage under crops, bare fallow, and grass
24,717,	24,768,	24,963,	25,289,	25,667,	25,616,	Total acreage of permanent pasture or grass not broken up in rotation (exclusive of heath or mountain land)
22,870,	22 878,	22,692,	22,379,	22,174,	22,280,	Total acreage of arable land
						Corn Crops—
3,066,	2,967,	3,164,	2,713,	2,751,	2,553,	Wheat
2,695,	2,663,	2,452,	2,486,	2,346,	2,447,	Barley or bere
4,192,	4,306,	4,245,	4,370,	4,277,	4,283,	Oats
48,	49,	64,	58,	54,	59,	Rye
436,	451,	447,	458,	455,	442,	Beans
235,	218,	248,	241,	230,	231,	Peas
10,672,	10,654,	10,620,	10,326,	10,113,	10,015,	Total acreage under corn crops
						Green Crops—
1,381,	1,443,	1,388,	1,360,	1,374,	1,356,	Potatoes
2,337,	2,341,	2,329,	2,346,	2,343,	2,332,	Turnips and swedes
385,	395,	371,	369,	363,	393,	Mangold
21,	20,	17,	17,	17,	20,	Carrots
204,	178,	193,	188,	192,	201,	Cabbage, kohl-rabi, and rape
418,	426,	450,	429,	445,	473,	Vetches and other green crops (except clover or grass)
4,746,	4,803,	4,748,	4,709,	4,734,	4,765,	Total acreage under green crops
6,389,	6,384,	6,333,	6,372,	6,392,	6,738,	Clover, sainfoin, and grasses under rotation
167,	154,	119,	100,	91,	111,	Flax
66,	65,	66,	68,	69,	71,	Hops
829,	818,	806,	803,	774,	580,	Bare fallow or uncropped arable land

RETURNED IN EACH YEAR.

No.	No.	No.	No.	No.	No.	
—	—	—	—	—	—	Horses (including ponies), as returned by occupiers of land—
—	—	—	—	—	—	Used solely for purposes of agriculture
						Unbroken horses and mares kept solely for breeding
1,930,	1,924,	1,905,	1,899,	1,905,	1,909,	Total number of horses
						Cattle—
3,655,	3,677,	3,682,	3,724,	3,765,	3,966,	Cows and heifers in milk or in calf
						Other cattle—
2,330,	2,412,	2,277,	2,235,	2,312,	2,420,	2 years old and above
3,886,	3,816,	3,873,	4,139,	4,346,	4,483,	Under 2 years old
9,871,	9,905,	9,832,	10,098,	10,423,	10 869,	Total number of cattle
						Sheep—
19,523,	18,274,	17,539,	17,966,	18,448,	18 717,	1 year old and above
10,717,	9,622,	9,909,	10,382,	10,929,	11,369,	Under 1 year old
30,240,	27,896,	27,448,	28,348,	29,377,	30,086.	Total number of sheep
2,863,	3,149,	3,956,	3,986,	3,906,	3,687,	Pigs*

exclusive of those kept in towns, and by cottagers with less than a quarter of an acre of land.
crops, owing to the acreage of flax not having been distinguished for Great Britain in 1867.
§ Figures for the year 1875.

III.—*Mortality in the Medical Profession.*

The following Report of a Paper read by Dr. William Ogle, M.A., F.R.C.P., &c., at the Meeting of the *Royal Medical and Chirurgical Society*, is taken from the *Lancet* of the 30th January, 1886.

"Dr. William Ogle, the successor of Dr. William Farr as Superintendent of the Statistical Department at the Registrar-General's Office, read a paper on Mortality in the Medical Profession. The paper, of which the following is a detailed abstract, has not only special interest for the medical profession, but is also, from a statistical point of view, a valuable contribution to statistics of class mortality, a subject upon which our information is at present mainly dependent upon figures derived from facts deficient in number, and often not beyond all suspicion of inaccuracy. The basis of facts on which Dr. Ogle's conclusions are based is wide enough to inspire confidence, and the source of his information is above suspicion. At the last census in 1881 the number of 'physicians, surgeons, and general practitioners' enumerated in England and Wales was 15,091, and after the census was over the causes of the deaths of all males aged 15 years and upwards in England and Wales during the three years 1880, 1881, and 1882 were abstracted from the national death register, in combination with the occupations of the deceased persons. The result of this process, as regards the mortality of medical men, was to show that their mean annual death-rate in those three years was 7·40 per 1,000 between 20 and 25 years of age, 11·57 between 25 and 45, 28·03 between 45 and 65, and 102·85 per 1,000 at 65 years and upwards. Among all medical men aged upwards of 20 years, the mean annual death-rate was 25·53 per 1,000. The first question suggested by these figures is whether the death-rate is high or low, and this inquiry naturally divides itself into two other questions. In the first place, is this death-rate of medical men in the three years 1880-82 higher than that of medical men in former times? and secondly, is it high compared with the death-rates of men engaged in other occupations? For an answer to the first of these questions, Dr. Ogle refers to the calculations of his predecessor, Dr. Farr, based upon similar investigations in 1860-61 and 1871, from which it appears that the annual death-rate of medical men aged upwards of 20 years was 23·60 in 1860-61, and rose to 24·98 in 1871, whereas it had further increased to 25·49 in 1880-82. These death-rates are all corrected for differences in the age-distribution of the profession at the successive periods, each of the rates being calculated on 1,000 medical men having the same age-distribution as existed in 1881. The fact of the progressive increase in the mortality of the medical profession between 1861 and 1881 is therefore established.

"It is to be noted, however, that the increase in 1880-82, compared with the earlier periods, is practically confined to the later periods of life, while among medical men under 45 years of age the rates had generally declined. The increase at all ages is

due to the increase at the later ages being greater than the decline at the earlier ages. Dr. Ogle points out that these features of the mortality statistics, the decrease at the earlier and the increase at the later ages, are not peculiar to the medical profession, being common to most of the other professions and industries. These features are discussed at some length in Dr. Ogle's report to the registrar-general on the mortality of the country in the decennium 1871-80. Contrary, however, to the case of the medical profession, 'the lives saved at the earlier ages were in excess of the lives lost at the later ages' in most other occupations, and among the male population generally, independently of occupation. In part explanation of this increase of mortality among the male population of England at the later ages coincidently with a decrease of mortality in the earlier stages of life, it is urged that it is due to the 'increased wear and tear of adult life, brought about by the growth of population, and by the keener struggle and competition which this growth necessarily brings with it.' In the second place, it is suggested that a certain 'number of comparatively weak lives, which in pre-sanitary times would have perished in infancy or childhood, have been preserved, and by their survival may have diminished the average vitality of the population at more advanced ages.'

"Dr. Ogle then passes on to compare the mortality of medical men in 1880-82 with that of men engaged in other occupations, and gives a table showing the annual death-rates in those three years in a number of different professions and trades. Each of the rates is calculated for 1,000 males, aged upwards of 20 years, with the same age-distribution as the medical profession. The death-rate of medical men is shown to be far in excess of that in other professions. Thus the death-rate is 15·93 in the clerical profession, 20·23 in the legal profession, and 19·90 in the scholastic profession, while in the medical profession it is, as has been stated, 25·53. The rate in the medical profession is not only higher than in any of the other learned professions, but also compares unfavourably with the rates in most other trades and industries, and is indeed 'only exceeded by the rates in certain trades and occupations that are notoriously unhealthy.'

"Having established beyond doubt the fact of the marked excess in the mortality of the medical profession, Dr. Ogle proceeds to consider what are the causes to which this excess is attributed, or rather what are the diseases under which it occurs. This information has been derived from copies of the entries in the death register relating to the deaths of 3,865 medical men during the years 1873-82, forwarded to the General Medical Council in accordance with legislative enactment for the due correction of the Medical Register. Dr. Ogle's information based upon these facts is, as he asserts, unique in character. No similar information unfortunately exists for any other profession or industry. The number of deaths dealt with is fairly large. The deaths were spread over a period of ten years, and they occurred in all parts of the country; they may therefore with full confidence be accepted as a fair sample of the causes of death of medical men. The

25,535 deaths estimated to occur annually among 1,000,000 medical men are therefore assumed to be caused by the various diseases in the proportion shown by the classification of the causes of the 3,865 deaths. The result of this distribution gives the annual death-rate per 1,000,000 medical men from each cause of death dealt with. A table is appended giving, side by side with these death-rates from the several causes among medical men, the rates from the same causes among all males in England and Wales, irrespective of occupation, and duly corrected for differences of age-distribution. The result of this comparison is to show that, with very few exceptions, the mortality of medical men is higher from every disease or group of diseases than is the mortality of males generally.

"Under some of the headings the 'medical mortality is twice, or thrice, or even more times greater than the average.' The table gives the comparison for twenty-six headings, in only five of which is the medical death-rate lower than that for all males. It is pointed out, moreover, that only three of these five headings, under which the advantage is on the side of medical men, are of any numerical importance—namely phthisis, diseases of the respiratory organs, and accident; and, as regards accident, the rate among medical men is really excessive if compared with that among other males, if a small number of highly dangerous occupations, such as mining, quarrying, and sea-fishing, be included. There remain, therefore, only two headings under which the medical mortality is markedly below the general average—namely, diseases of the respiratory organs and phthisis; the medical mortality from diseases of the respiratory organs was 27 per cent., and that of phthisis no less than 45 per cent. below the average for all males. These causes of death are most fatal among those classes of the population liable to destitution, and it is therefore possible that mortality statistics for other sections of the middle or professional classes would show death-rates from phthisis and diseases of the respiratory organs as low as those prevailing among the medical profession.

"One of the most interesting features in the comparison between the rates of mortality from various diseases in the medical profession and among all males is the contrast presented by small-pox and other zymotic diseases. The annual death-rate from small-pox among all males aged upwards of 20 years is 73 per 1,000,000, whereas in the medical profession it is only 13, showing that although the profession is of course very much more exposed to the risk of infection than any other class of male adults, their mortality is scarcely more than a sixth of the average. The only possible explanation of the fact appears to be the great probability that medical men are more generally and better vaccinated than the rest of the male population. In the case, however, of other infectious diseases against which no similar prophylactic remedy is known, the comparison gives a very different result. The mortality of medical men from scarlet fever, typhus, diphtheria, enteric fever, malarial fever, and erysipelas is very largely in excess of the average. The excess of mortality from remittent

and intermittent fever is attributed to the large proportion of the profession who have served abroad in the army or the navy, or who have practised in India or the colonies. The death-rate from scarlet fever in the medical profession is 59 against an average of 16; from diphtheria, 59 against 14; from enteric fever, 311 against 238; and from erysipelas, 172 against 136. The marked excess in the death-rate from liver diseases, which is 1,744 in the medical profession against an average of 744, may, it is suggested, be partly due to the same cause to which is attributed the greater fatality of malarial diseases. It is pointed out, however, that the death-rate from gout is 291 against an average of 78; from diseases of the bladder and prostate, 634 against 287; from other diseases of the urinary system, 1,520 against 665; from diabetes, 284 against 108; and from alcoholism, 178 against 130.

"With regard to these figures Dr. Ogle says: 'It becomes difficult to resist the conclusion that the main part of the enormous mortality from hepatic diseases is due, despite the indignant protest of Professor Caspar to the contrary, to the neglect by medical men, as a body, of those wise rules of diet which they lay down for the guidance of their patients.' The excess of mortality from liver diseases in the medical profession is 134 per cent., and from urinary diseases 128 per cent.; while, on the other hand, the excess from diseases of the organs of circulation is only 41 per cent., and from diseases of the nervous system only 7 per cent. above the rate among the general population. The excess in the death-rates from diabetes and malignant diseases is attributed to the probability that the diseases to which medical men succumb are more correctly diagnosed and more carefully stated in the death certificates.

"With regard to the death-rate among medical men from accident, it appears certain that if this could be compared with the rate from the same causes among men engaged in other professions and belonging to the middle class, the accident-rate in the medical profession would show a considerable excess, whereas it is below the average for all males, including those engaged in mining, quarrying, and sea-fishing. The death-rate from suicide is 363 per 1,000,000 among medical men, against an average of 238 for all males; and it is further pointed out that the tendency to suicide is increasing in the medical profession, whereas no corresponding increase is shown in the figures for the general male population. In order to facilitate a comparison between the death-rates from suicide in the three principal professions—legal, clerical, and medical—the annual rates were specially calculated for the six years 1878-83; they are given as 128 for the clerical, 354 for the legal, and 464 for the medical professions. The numbers upon which these rates were calculated are comparatively small, but it is urged that the rates, at any rate, conclusively prove that suicide is far more common among the medical than among either of the two other professions. The suicide figures show that medical men, as regards the methods of self-destruction, show a notably preferential choice for poison. In 26 of the 55 cases of suicide among the 3,865 deaths of medical men, taken as a sample of the causes

of death in the profession, or 47 per cent., death was effected by poison, and it is further noticed that in no less than 14 of these cases of poison prussic acid was the selected agent. In conclusion, it is remarked that the statistics given in the paper prove the fallacy of the ancient belief that 'the life of a medical man is, as a rule, longer and healthier than that of other men;' but while the 'results of this pitiless test of statistical inquiry are utterly incompatible with that ancient and optimistic view, it is at any rate not unsatisfactory to note that they offer on the whole a much less gloomy view of the condition of the profession than the figures given by former inquirers, such as Professor Caspar and Dr. Escherich.'

"Dr. George Johnson said the comparatively few numbers of deaths from small pox in medical men was a favourable item. Deaths from other infectious diseases were numerous, and this was what one might have expected from the great exposure of medical men to such affections. The reason why the mortality was so high from enteric fever was a question of much importance, and could not be explained on the assumption that the houses of medical men were not in as good a sanitary condition as the generality of people. He thought that the attendance on the poor at their own homes, where medical men had to enter the worst dwellings in London, was the chief way in which they contracted this disease, which would, he thought, be found to fall chiefly on that class of medical men who attended the poor. The great exposure to cold of many country practitioners would probably be one reason for the frequency of urinary diseases, and not alcoholism.

"Mr. Noel Humphreys ventured to offer some remarks on the purely statistical part of the paper. It had been most conclusively shown that the death-rate was much in excess of males generally and of other professions, and also that it was increasing. With regard to the causes of death, he considered that Dr. Ogle's paper made a comparison between medical men and the working classes, which composed the majority of the male population, and this fact prevented the comparison having full weight. The comparison should be made with other members of the middle class. As to phthisis, it had been shown that the mortality was below the general average, but the general male population were more exposed to the weather and to the hardships of poverty than, as a rule, medical men were. He considered that this immunity was due to a class difference, and not peculiar to medical men, but enjoyed by other members of the upper and middle classes. The extent of respiratory diseases bore a direct proportion to the degree of poverty. The greater frequency of liver and digestive diseases was probably to be attributed to the excessive eating and drinking, as well as to want of exercise, and this was probably also a class difference. He regarded Dr. Ogle's paper as a most valuable contribution, especially to class mortality statistics. In the existence of the Medical Register he considered that there were unusual opportunities for constructing a real life-table of medical men.

"Mr. Newbatt, the well-known actuary, criticised Dr. Ogle's paper from the statistical point of view, and doubted whether its

results completely disposed of the difficulty. The numbers, he pointed out, were comparatively small, and therefore liable to errors; 15,000 was not a large number to work with, and when these became distributed the results would be still less reliable in each of the sections. They would be required to be received with some little caution. A very slight difference in the mode of grouping would cause a remarkable difference in results; an incorrectness in the statement of the age, even, would make a difference when small numbers were dealt with; these peculiarities were well recognised by students of vital statistics. He was rather startled to hear that the death-rate in the medical profession was excessive, for he believed that most statisticians had arrived at a different conclusion. Dr. Guy, forty years ago, read a series of papers on longevity in the learned professions, and showed that there was little difference between the professions, though even then there was a slight difference in favour of medical men and of the clergy as compared with lawyers. True, these statistics were based on unscientific methods, but as such they were of equal value with Caspar's; yet, as a matter of comparison between the professions themselves, they were of some value. Dr. Ogle's statistics were scientific and original, and could not be compared with data from other professions, because such data did not at present exist.

"Dr. C. H. F. Routh joined in the discussion.

"Dr. J. G. Glover doubted whether thirteen deaths from small pox was a credit to the profession; he considered that there ought to be none, seeing that nurses and attendants on cases of small pox could protect themselves absolutely from the disease by effective revaccination. Dr. Ogle's statistics showed that the annual death-rate of the profession in England and Wales was about 386 a year, and even doubling this number to include Scotland and Ireland, we then had 772 as the waste of the profession; this number, he pointed out, was greatly in contrast with 1,600 given as the annual loss to the profession by Dr. Lyon Playfair. If Dr. Ogle's statistics included deaths of unqualified and unregistered practitioners, that might prove a source of error. The nightwork, the irregularity of habits, the wear and tear of medical life, and the want of care that medical men took of their own health, would probably explain partly the excessive mortality.

"Dr. C. T. Williams was surprised that respiratory diseases should prove so comparatively rarely fatal to medical men, seeing the amount of exposure to weather that they experienced. He argued that, as medical men were able to ward off death from respiratory diseases, there was hope that they could do something to reduce their mortality from hepatic and digestive diseases. Could Dr. Ogle give any information as to the relative value of a medical man's life according as he was resident in town or country? The public ought to know of the excessive mortality of their medical attendants, and would probably sympathise with the hardships of their lives; but insurance offices, on learning the information, might be inclined to 'rate up' the lives of medical men.

"Dr. Douglas Powell said that Dr. Guy's results were appended in a foot-note to Dr. Ogle's paper.

"Dr. Ogle, in reply, said that no doubt the comparison between medical men and the general male population was a faulty one in some respects, but it was the only comparison available. We had at present no means of obtaining the mortality of other learned professions. In reply to Mr. Newbatt, he admitted that he had dealt with a small population, but that could not be helped. He said, however, that the number dealt with for three years would really mean three times 15,000. Still, additional credit might be given to his results, since they coincided with the figures of the census of 1861 and 1871, and so had the additional support of similar results. The only authorities that he had quoted, Caspar and Escherich, gave an even higher mortality than he had obtained. The number of unregistered practitioners included in his statistics would certainly be small, even if there were any, and he did not think that this item could lead to any flaw of appreciable dimensions. He did not enter into the reasons for the deaths from different causes, but simply stated them, and he had no information which would enable him to give an answer to the question put by Dr. Williams.

IV.—*The Fires in London during the Year* 1885, *and the Metropolitan Fire Brigade.*

The following particulars are taken from Captain Shaw's Report for 1885, to the Metropolitan Board of Works, in continuation of similar notices for previous years:—

"The number of calls for fires, or supposed fires, received during the year has been 2,851. Of these 410 were false alarms, 171 proved to be only chimney alarms, and 2,270 were calls for fires, of which 160 resulted in serious damage, and 2,110 in slight damage.

"These figures only refer to the regular calls for fires, or supposed fires, involving the turning out of firemen, fire engines, fire escapes, horses, and coachmen; they do not include trifling damages by fires which were not sufficiently important to require the attendance of firemen; neither do they include the ordinary calls for chimneys on fire, which are separately accounted for further on.

"The fires of 1885, compared with those of 1884, show a decrease of 19; but compared with the average of the previous ten years, an increase of 441.

"The following table gives the result both in actual numbers and percentages:—

Year.	Number of Fires.			Percentages.		
	Serious.	Slight.	Total.	Serious.	Slight.	Total.
1866.....	326	1,012	1,338	25	75	100
'67.....	245	1,152	1,397	18	82	100
'68.....	235	1,433	1,668	14	86	100
'69.....	199	1,373	1,572	13	87	100
'70.....	276	1,670	1,946	14	86	100
'71.....	207	1,635	1,842	11	89	100
'72.....	120	1,374	1,494	8	92	100
'73.....	166	1,382	1,548	11	89	100
'74.....	154	1,419	1,573	10	90	100
'75.....	163	1,366	1,529	11	89	100
'76.....	166	1,466	1,632	11	89	100
'77.....	159	1,374	1,533	10	90	100
'78.....	170	1,489	1,659	10	90	100
'79.....	159	1,559	1,718	9	91	100
'80.....	162	1,709	1,871	9	91	100
'81.....	167	1,824	1,991	8	92	100
'82.....	164	1,762	1,926	9	91	100
'83.....	184	1,960	2,144	9	91	100
'84.....	194	2,095	2,289	9	91	100
'85.....	160	2,110	2,270	7	93	100

" The number of fires in the metropolis in which life has been seriously endangered during the year 1885 has been 138; and the number of these in which life has been lost has been 36.

" The number of persons seriously endangered by fire has been 201, of whom 154 were saved, and 47 lost their lives. Of the 47 lost, 24 were taken out alive, but died afterwards in hospitals or elsewhere, and 23 were suffocated or burned to death.

* * * * *

" The number of calls for chimneys has been 3,603. Of these 1,239 proved to be false alarms, and 2,364 were for chimneys on fire. In these cases there was no attendance of engines, but only of firemen with hand-pumps.

"The number of journeys made by the fire engines of the 55 land stations has been 32,272, and the total distance run has been 65,257 miles.

"The quantity of water used for extinguishing fires in the metropolis during the year has been almost exactly 19½ million gallons, or about 87,000 tons. Of this quantity, nearly 25,000 tons, or less than one-third of the whole, were taken from the river, canals, and docks, and the remainder from the street pipes.

"During the year there have been 13 cases of short supply of water, 17 of late attendance of turncocks, and 9 of no attendance, making altogether 39 cases in which the water arrangements were unsatisfactory; but, notwithstanding this, I am bound to repeat my usual statement, that all the water companies have made great efforts to serve us, and that we owe them our warmest thanks for their successful exertions in this respect.

"I have also, as usual, to express our great obligations to the metropolitan and city police, whose cordial and energetic co-operation never fails us under any circumstances, however difficult.

"The strength of the brigade is as follows:—

55 land fire engine stations.
4 floating or river „
26 hose cart stations.
127 fire escape „
4 steam fire engines on barges.
42 land steam fire engines.
87 six-inch manual fire engines.
37 under six-inch manual fire engines.
64 hose carts.
3 self-propelling fire floats.
4 steam tugs.
7 barges.
144 fire escapes.
5 long fire ladders.
4 ladder vans.
2 „ trucks.
1 trolly for ladders.
1 „ engines.
12 hose and coal vans.
11 waggons for street duties.
2 street stations for „
107 watch boxes.
589 firemen, including chief officer, second officer, superintendents, and all ranks.
14 pilots.
66 coachmen.
131 horses.

"During the year there has been some development of our means of communication, and we have now the following lines in working order; but orders have been issued for the completion of the system, and it is probable that within the next few months the whole of the work may be executed:—

28 telegraphs between fire stations.
38 telephones ,,
1 direct fire alarm ,,
42 alarm circuits round fire stations with 263 call points.
3 telegraphs to police stations.
18 telephones ,,
13 telegraphs to public and other buildings.
20 telephones ,,
13 direct fire alarms ,,

"The number of firemen employed on the several watches kept up throughout the metropolis is at present 110 by day and 245 by night, making a total of 355 in every twenty-four hours; the remaining men are available for general work at fires.

"Our list of wounds and other injuries for 1885 is, as usual, very heavy; but the nature of the work, and the way in which it is always carried out, make it impossible to diminish the number of accidents.

* * * * *

"A reference to the figures in this report will show that the total number of calls, including those for actual fires, supposed fires, chimney fires, and supposed chimney fires, has been 6,454, or more than 17 a day, all of which have been attended by firemen with suitable appliances.

"The abolition of payments for calls has been attended with very satisfactory results in reducing the number of unnecessary alarms to an appreciable extent.

"In addition to the fires we have kept 129,575 watches of twelve hours each, have maintained all the machinery of the brigade in working order, written several thousand reports and letters, and carried on a variety of other work.

"This represents a severe amount of labour for so small a force, but all ranks have done their best; and I venture to express a hope that the result may not be considered unsatisfactory."

* * * * *

The following particulars (*a*, *b*, *c*) are obtained from the tables appended to the report, namely:—

(*a*) The fires classified according to occupations, arranged in the order of frequency of occurrence; to which are added, for the purpose of comparison, the corresponding figures for the three previous years:—

Number.	Occupations.	Number of Fires.			
		1885.	1884.	1883.	1882.
1	Private houses	558	530	440	423
2	Lodgings	295	309	256	235
3	Victuallers	57	77	65	58
4	Oil and colourmen	44	52	48	30
5	Grocers	39	28	42	44
6	Drapers	35	35	40	21
7	Tailors, clothiers, and outfitters	33	34	27	28
8	Offices	32	28	16	16
9	Builders	31	26	35	27
10	Unoccupied	30	33	13	22
11	Tobacconists	29	24	22	22
12	Coffee houses	28	20	46	31
13	Bakers	27	23	30	23
14	Boot and shoe makers	26	26	30	36
15	Cabinet makers	26	28	28	30
16	Carpenters and workers in wood	24	9	14	15
17	Refreshment rooms	24	24	13	19
18	Booksellers, binders, and stationers	23	20	21	26
19	Greengrocers and fruiterers	22	38	34	26
20	Hotels and club houses	22	6	13	13
21	Confectioners and pastrycooks	21	17	33	19
22	Corn dealers	21	22	16	10
23	Under repairs and building	21	31	32	22
24	Hairdressers	19	14	5	10
25	Stables	19	25	12	21
26	Warehouses	19	13	27	13
27	Printers	18	25	14	22
28	Public buildings, not theatres	18	13	8	6
29	Farming stock	17	17	10	8
30	Fried fish shops	17	17	8	11
31	Furniture makers and dealers	16	15	17	16
32	Ironmongers	14	6	7	7
33	Milliners and dressmakers	14	9	22	12
34	Rag merchants	14	9	8	10
35	Beershop keepers	13	24	19	8
36	Chemists, and laboratories for chemical purposes	13	13	16	13
37	Railways	13	21	15	14
38	Brush makers	12	7	4	3
39	China, glass, and earthenware dealers	12	10	12	2
40	Furriers and skinners	12	13	7	5
41	Let out in tenements	12	2	3	2
42	Cheesemongers	11	3	8	10
43	Laundries	11	8	13	11
44	Butchers	10	12	13	7
45	Chandlers	10	19	30	18
46	Engineers and machinists	10	20	15	12
47	Hatters	10	9	9	18
48	Schools	10	12	8	6
49	Watch and clock makers	10	6	4	6
50	Wine and spirit merchants	10	14	8	10
		1,832	—	—	—
	Remainder, varying from 9 to 1	438	—	—	—
		2,270	—	—	—

(*b*) The fires classified under the causes to which they have been assigned, and arranged in the order of frequency of occurrence:—

Causes.	Number of Fires.
1. Unknown	659
2. Lamps (not gas) and lights (thrown down)	485
3. Gas (in various ways)	194
4. Sparks from fires, &c.	174
5. Defective, or improperly set—flues, hearths, boilers, stoves, &c.	161
6. Candles	149
7. Children playing with fire, matches, &c.	77
8. Overheating of—flues, ovens, furnaces, boilers, stoves, &c.	61
9. Hot ashes	55
10. Foul flues, &c.	49
11. Boiling over, or upsetting of fat, pitch, &c.	41
12. Lucifer matches	34
13. Airing linen and drying stoves	33
14. Lime slaking by rain and otherwise	17
15. Smoking tobacco	17
16. Spirits, or vapour of spirits, in contact with flame	14
17. Spontaneous ignition	11
18. Fumigating	7
19. Fire, clothes coming in contact with	6
20. Burning rubbish	4
21. Friction of machinery	4
Miscellaneous, varying from 3 to 1	18
Total	2,270

(*c*) The following table giving the totals of the fires for each day of the week for the last ten years, shows on the average that the largest number of fires occur on Saturday and the smallest number on Monday. The annual average number of fires for the last ten years is 1,903:—

Years.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	Total.
1876....	260	218	226	235	242	221	230	1,632
'77....	192	218	212	224	243	216	228	1,533
'78....	260	191	271	234	214	236	253	1,659
'79....	235	212	231	257	264	251	268	1,718
'80....	288	262	253	259	254	266	289	1,871
'81....	270	267	315	288	279	253	319	1,991
'82....	285	246	296	267	281	274	277	1,926
'83....	297	334	309	318	269	295	322	2,144
'84....	296	330	304	335	338	340	346	2,289
'85....	331	319	321	338	326	300	335	2,270
Total...	2,714	2,597	2,738	2,755	2,710	2,652	2,867	19,033

V.—*German Literature of* 1884 *and* 1885.

The following is taken from the *Publishers' Circular* of the 15th February, 1886:—

"The *Börsenblatt* gives the following summary of German publications during the years 1884 and 1885:—

		1884.	1885.
1.	Collected works—literary science, bibliography	438	409
2.	Theology	1,461	1,391
3.	Jurisprudence, politics, statistics, commerce	1,472	1,483
4.	Medical science, veterinary science	928	904
5.	Natural science, chemistry, pharmacy	835	851
6.	Philosophy	132	136
7*a*.	Pædagogy, German school-books, gymnastics	2,029	2,169
7*b*.	Children's books	406	520
8.	Classical and eastern languages, archæology, mythology	612	710
9.	Modern languages, old German literature	489	570
10.	History, biography, memoirs, correspondence	807	777
11.	Geography, travels	460	495
12.	Mathematics, astronomy	204	252
13.	Military science, horse management	380	435
14.	Science of trade, technology	698	727
15.	Building, engineering and railway science, mining, navigation	411	507
16.	Forestry and hunting	106	108
17.	Domestic and national economy, gardening	387	419
18.	Belles lettres, novels, poetry, plays, &c.	1,303	1,345
19.	Fine arts (painting, music, &c.), shorthand	623	660
20.	Popular literature, almanacks	643	712
21.	Freemasonry	26	21
22.	Miscellaneous	450	330
	Maps	307	376
	Total	15,607	16,305

VI.—*English Literature in* 1885.

The following particulars are taken from the *Publishers' Circular* of the 31st December, 1885, in continuation of a series of similar extracts for previous years:—

"How far the prevailing depression of trade has influenced the business of the book world may be judged by a glance at the analytical table of books published during the year, which according to our usual custom, we now submit to our readers. Compared with 1884 there is a deficiency of 733 books in the aggregate, the loss being 525 in new books and 208 in new editions. The sections in which an increase has taken place are juvenile books and fiction, the former increasing from 603 to 671, and the latter from 408 to

455. The sections in which considerable falls have occurred are theology, and history, biography, &c. Other comparisons may be found in the year's results, which are clearly stated below, and supply an interesting commentary upon the state of the literary market of the year.

Analytical Table of Books Published in 1885.

Subjects.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total of Books on each Subject for the Year.	
Theology, sermons, biblical, &c.	*19	35	44	44	60	55	33	32	43	72	81	118	636	
	†—	13	18	31	24	19	13	15	17	14	15	32	211	
													—	847
Educational, classical, and philological	*25	46	46	48	34	49	44	37	27	45	63	69	533	
	† 6	12	13	5	14	6	6	15	5	4	14	19	119	
													—	652
Juvenile works and tales	*19	24	19	32	41	30	28	41	47	116	162	112	671	
	† 7	12	5	10	9	11	14	7	13	7	18	29	142	
													—	813
Novels, tales, and other fiction	* 9	35	32	33	41	44	32	32	30	37	46	84	455	
	† 3	8	14	18	26	33	35	22	14	26	16	25	240	
													—	695
Law, jurisprudence, &c.	* 5	3	9	1	15	7	7	7	8	4	3	3	72	
	† 4	2	8	—	17	5	2	5	3	3	3	5	57	
													—	129
Political and social economy, trade and commerce	* 4	13	14	13	21	16	13	6	17	18	34	41	210	
	† 1	1	5	6	4	2	4	5	2	6	3	4	43	
													—	253
Arts, science, and illustrated works	*11	26	24	16	14	20	26	21	12	19	34	41	264	
	† 9	11	4	6	9	9	12	10	9	8	11	11	109	
													—	373
Voyages, travels, and geographical research	* 6	13	10	17	9	24	17	14	2	16	23	18	169	
	†—	3	7	5	6	8	6	23	2	—	7	3	70	
													—	239
History, biography, &c.	*22	38	28	30	33	24	27	14	20	35	47	57	375	
	† 6	14	13	5	14	7	3	6	5	7	8	18	106	
													—	481
Poetry and the drama	* 9	6	5	8	27	10	13	11	5	9	1	14	118	
	† 2	2	1	—	6	1	2	2	1	3	12	14	46	
													—	164
Year books and serials in volumes	*32	39	23	24	18	26	15	11	8	18	37	86	337	
	†—	—	1	2	—	3	3	—	—	1	—	—	10	
													—	347
Medicine, surgery, &c.	* 9	11	10	10	11	7	13	8	11	8	3	15	116	
	† 6	7	4	10	8	7	5	2	4	4	5	9	71	
													—	187
Belles lettres, essays, monographs, &c.	* 3	13	10	10	12	8	12	18	9	11	14	26	146	
	† 3	4	9	8	2	3	2	1	3	5	14	20	74	
													—	220
Miscellaneous, including pamphlets, not sermons	*11	16	17	24	12	7	9	8	15	13	26	47	205	
	† 1	2	2	7	2	1	4	2	—	4	6	4	35	
													—	240
	232	409	395	423	489	442	400	375	332	513	706	924		5,640

* New books. † New editions.

"The analytical table is divided into fourteen classes; also new books and new editions."

Divisions.	1884.		1885.	
	New Books.	New Editions.	New Books.	New Editions.
Theology, sermons, biblical, &c.	724	205	636	211
Educational, classical, and philological	543	140	533	119
Juvenile works and tales	603	154	671	142
Novels, tales, and other fiction	408	289	455	240
Law, jurisprudence, &c.	163	116	72	57
Political and social economy, trade and commerce	203	36	210	43
Arts, sciences, and illustrated works	432	159	264	109
Voyages, travels, geographical research	236	95	169	70
History, biography, &c.	490	133	375	106
Poetry and the drama	179	49	118	46
Year books and serials in volumes	323	1	337	10
Medicine, surgery, &c.	160	55	116	71
Belles lettres, essays, monographs, &c.	160	79	146	74
Miscellaneous, including pamphlets, not sermons	208	30	205	35
	4,832	1,541	4,307	1,333
	6,373		5,640	

VII.—*The Production of Precious Metals and the Monetary Circulation in Various Countries. (Translated from the "Bulletin de Statistique et de Legislation Comparée," September*, 1885.)

THE following particulars relating to the production, industrial consumption, coinage, and circulation of gold and silver, which are extracted from a work recently issued by Dr. Soetbeer, bring down the information hitherto collected on this subject to the latest date.

Dr. Soetbeer first deals with the total production of the precious metals, and gives the following statement showing the total average annual production of gold and silver at various periods since the year 1851, the original figures being converted into English weights and money:—

Years.	Gold.		Silver.	
	Quantity.	Value.	Quantity.	Value.
	lbs.	£	lbs.	£
1851–60 (annual average)	443,900	28,100,000	1,969,000	8,000,000
'61–70 („)	414,700	26,300,000	2,684,000	10,900,000
'71–80 („)	377,300	23,900,000	4,917,000	20,100,000
'81	356,200	22,500,000	5,548,000	22,600,000
'82	341,400	21,600,000	5,794,000	23,700, 00
'83	314,600	19,900,000	6,060,000	24,900,' 00
'84	308,000	19,500,000	6,160,000	25,200,000

It should be observed that the figures relating to the year 1884 are provisional only, and are subject to rectification in future years, and also that the value of the silver has been calculated at an average rate of about 8*1s.* per pound. If however the value of this metal is calculated according to the average annual prices, we shall find that the results for the years 1881, 1882, and 1883, are as follows—19 millions, 20 millions, and 21 millions sterling respectively.

The following table will show the average annual prices of silver in London since the year 1871 :—

Years.	Price per Standard Ounce.		
	Maximum.	Minimum.	Average.
	d.	*d.*	*d.*
1871–75 (annual average)	$61\frac{1}{8}$	$55\frac{1}{2}$	59
'71–80 („)	$58\frac{1}{8}$	$46\frac{3}{4}$	$53\frac{1}{8}$
'81	$52\frac{1}{8}$	$51\frac{3}{8}$	$51\frac{11}{16}$
'82	$57\frac{7}{6}$	50	$51\frac{3}{8}$
'83	51	50	$50\frac{9}{16}$
'84	$51\frac{3}{8}$	$49\frac{1}{2}$	$50\frac{5}{8}$
January to March, 1885	50	$48\frac{13}{16}$	$49\frac{1}{4}$

Since the date of M. Soetbeer's work, more particularly towards the end of last year, a further fall took place in the price of silver, the price averaging about 47*d.* per ounce, this being below the lowest quotations in 1876.

To the subject of the consumption of gold in various countries Dr. Soetbeer has devoted considerable attention, and he prepared a statement, which is here reproduced, showing the industrial consumption of gold and silver in 1880, deduction being made of the old metal intended for melting down.

Countries.	Gold.	Silver.
	lbs.	lbs.
United States	29,000	222,000
„ Kingdom	37,000	158,000
France	37,000	187,000
Switzerland	24,000	52,000
Germany	25,000	165,000
Other countries	29,000	270,000
Total	181,000	1,054,000

As regards the United States, special efforts are made to ascertain the actual consumption of gold and silver in the arts and manufactures, through the medium of circular letters to persons and firms engaged in occupations or business requiring the use of the precious metals, and the following table was prepared by Mr. Burchard, showing the extent of this consumption in each of the four years ending 1883, the sums melted down being included in the general totals. This however does not affect the aggregate

to any considerable extent, as the quantity melted down is very much less in the United States than in Europe, representing only about 10 per cent. of the total consumption :—

Years.	Gold.			Silver.		
	Quantity.	Value.		Quantity.	Value.	
	lbs.	$	£ stlng.	lbs.	$	£ stlng.
1878–80....	33,000	10,000,000	= 2,100,000	264,000	5,000,500	= 1,000,000
'80–81....	36,000	11,000,000	= 2,300,000	317,000	6,000,000	= 1,300,000
'81–82....	40,000	12,000,000	= 2,500,000	372,000	7,000,000	= 1,500,000
'82–83....	40,000	12,000,000	= 2,500,000	343,000	6,500,000	= 1,400,000

In his report of the 1st December, 1884, Mr. Burchard states that 7,969 circulars were addressed and forwarded to different houses and firms, requesting to be furnished with information as to the amount of gold and silver used in the various arts and manufactures, and in reply 5,418 answers were received, from which it appeared that 2,734 persons used in repairing, or in the manufacture of chemicals, watches, instruments, plate, &c., in the fiscal year ended 30th June, 1884, gold to the value of 14,500,000 dollars, or 3 millions sterling, weighing about 48,000 lbs., and silver to the value of 5 million dollars, or 1 million sterling, making a total weight of about 264,000 lbs.

The returns of gold and silver exported to the east are in all respects more reliable than those relating to the industrial consumption of the precious metals. The movement is followed with great interest by commercial houses generally, and not only are the particulars carefully checked in the countries of origin, but the Indian trade accounts furnish the means of verifying them. The subjoined statement, prepared partly on the basis of the information supplied by the firm of Westwood Thompson, and partly from the various custom house returns shows the amount of gold and silver exported from England and the Mediterranean ports to the east, at the same time distinguishing the excess of imports into British India :—

Years.	Exports to the East.		Excess of Imports in British India.	
	Gold.	Silver.	Gold.	Silver.
	£	£	£	£
1861–70 (annual average)	3,980,000	8,600,000	5,830,000	9,700,000
'71–80 („)	3,020,000	7,420,000	1,600,000	5,500,000
'81	2,530,000	4,500,000	3,600,000	3,850,000
'82	3,510,000	8,490,000	4,840,000	5,300,000
'83	1,930,000	7,200,000	4,930,000	7,480,000
'84	4,180,000	8,600,000	5,400,000	6,400,000

To explain the apparent discrepancies in the above figures, it will be necessary to state, that the returns of the exports to the

east relate to the calendar year, while the excess of imports into British India are for the financial year ending 31st March; and moreover the imports are inclusive of the various amounts sent from Australia and elsewhere, while certain quantities of the precious metals imported from Europe are immediately re-exported to other parts of the east.

Other explanations might be offered on this point if it were necessary to accurately determine the intensity of the international current of gold and silver, but what is more particularly desired is to show approximately the importance of the exports of precious metals to the east in relation to the general circulation.

Dr. Soetbeer next proceeds to deal with the question of the influence exercised upon the price of commodities by the increase or diminution in the supply of gold and silver; but we shall not devote any particular attention to this question, but will next examine Dr. Soetbeer's figures relating to the monetary circulation of the principal countries.

As regards the United Kingdom, it appears from a report recently made by the United States' Legation in London, that the amount of gold, silver, and bank notes in circulation at the end of 1883 was as follows:—

	£
Gold	120,829,000
Silver	19,530,000
Bank notes	42,053,000

The question as to the expediency of authorising the issue of one pound notes in England, as is done in Scotland and Ireland, has recently, again been warmly discussed. The result of the adoption of the measure would be to considerably augment the reserves in the Bank of England. As is well known, in North America, the Scandinavian kingdoms, Scotland, and in fact all countries where banking institutions enjoy the public confidence, a preference is given to paper currency over gold, which accumulates in the bank coffers.

While the monetary policy of the United Kingdom is based upon gold as the standard money, British India has, since the year 1835, adopted the silver standard. The total value of silver coined in India during the forty-two years ended 1882 amounted to 243 millions, and the average annual value for the period 1871-83 was about 5 millions sterling. The amount of gold coined was insignificant, but large quantities of this metal are annually consumed in the manufacture of jewellery and in other ways.

As is well known, the depreciation of silver entails a very heavy loss upon the Indian Government. The loss arising from exchange, in so far as regards the Government bills on the Indian Presidencies, was estimated in the Indian budget of 1882 at nearly 4 millions sterling. The following table will show the balance of Indian trade during the period 1871-80 and for the four following financial years:—

[000's omitted.]

	Years.				
	1871-80.	1880-81.	1881-82.	1882-83.	1883-84.
	£	£	£	£	£
Excess of exports over imports of merchandise	23,295,	24,220,	34,910,	33,400,	37,290,
Excess of imports of silver	5,500,	3,890,	5,380,	7,480,	6,400,
„ gold	1,600,	3,660,	4,840,	4,980,	5,460,
Council bills	12,110,	16,270,	12,000,	18,940,	16,900,

We will now look into the question of the gold, silver, and note circulation of the principal European countries, and taking first the Scandinavian Union, we find that the total amount of gold and silver coined since the adoption of the single gold standard was as follows:—

Gold.	Silver.	Bronze.
Krona.	Krona.	Krona.
90,523,000	38,416,000	1,776,000

in all about 7 millions sterling; while the note circulation at the end of 1883 amounted to 201 millions of krona, of which 108 millions only were secured by the metallic reserves in the banks. M. Ottomar Haupt estimated that in the Scandinavian Union the metallic currency and the total unsecured note circulation per head of population was as follows:—

	Denmark.				Sweden.			Norway.		
	Krona	£	*s.*	*d.*	Krona	*s.*	*d.*	Krona	*s.*	*d.*
Gold	27·00 =	1	10	–	9·30 =	10	4	14·50 =	16	1
Silver	9·00 =	–	10	–	3·30 =	3	8	2·70 =	3	–
Bronze	0·30 =	–	–	4	0·18 =	–	2	0·20 =	–	2
Bank notes unsecured	12·00 =	–	13	4	11·00 =	12	2	10·00 =	11	1

The Grand Duchy of Finland has had a gold standard since 1877, and the standard is the gold *markka*, which is equivalent to the franc. At the end of 1883 gold pieces to the value of 21,900,000 *markkas*, and silver to the value of 12,183,500 *markkas*, were coined, making a total in English currency of 1,363,340*l.*

Holland adopted the silver standard in 1847, but from 21st May, 1873, to 1st May, 1874, and later from 3rd December, 1874, silver coinage was entirely suspended. In the interval 32 million florins, silver money, were coined at Utrecht, of which 25 millions were from the bars of silver belonging to the Netherlands bank. By the law of 6th June, 1875, the gold standard was adopted, and the ratio of gold to silver was established in the proportion of 1 to $15\frac{5}{8}$. It is estimated that in Holland, since the year 1840, rather

more than 346 million florins, or about 29 millions sterling, in silver have been coined, of which 230 million florins were for the Dutch possessions in the East Indies. The gold coined at Utrecht from 1875 to 1883 amounted to 74,303,910 florins, or 6 millions sterling. On the other hand the Netherlands bank held during this period immense quantities of gold. On the 30th September, 1878, the bank held gold ten-florin pieces to the amount of 37 million florins, and gold in bars or foreign coin to the amount of 71 million florins. These reserves were to a great extent exported in 1882, and at the commencement of 1883 there were only 5 million florins in the bank coffers, while this amount had increased to about 20 millions at the end of 1884. A reference to the following statement will show M. Haupt's estimate of the composition of the monetary circulation of the Netherlands at the commencement of 1884:—

	Florins.	£ stlng.
Silver coin in circulation in Holland	150,000,000 =	12,600,000
„ the colonies	200,000,000 =	16,800,000
Gold coin in circulation in Holland	15,000,000 =	1,200,000
„ deposited at the Netherlands bank	24,000,000 =	2,000,000
„ in circulation in the colonies	5,000,000 =	400,000
Bronze coin in circulation in Holland	8,000,000 =	660,000
„ the colonies	18,000,000 =	1,500,000
Bank notes, uncovered	81,000,000 =	6,700,000

or, say, 42 millions sterling.

Some exception may perhaps be taken to M. Haupt's estimate of the amount of silver in circulation in the Dutch possessions as being placed at too high a figure, in view of the fact that the great part of the silver imported there is either hoarded or re-exported. Before leaving the subject of the Netherlands monetary circulation, it may be added that by the law of the 27th April, 1884, the Government is empowered, should the necessity arise, to withdraw 25 millions of florins in silver from circulation, for melting down and applying the proceeds to the purchase of gold.

Taking next the States composing the Latin Union, M. Haupt estimated the amount of gold and silver coin and note circulation as follows:—

[000's omitted.]

Countries.	Gold Coin.		Silver Coin.		Fractional Currency.		Bank Notes Uncovered.	
	Frs.	£ stlng.	Frs.	£ stlng.	Frs.	£ stlng.	Frs.	£ stlng.
France	4,400,000,	= 176,000,	3,400,000,	= 136,000,	200,000,	= 8,000,	990,000,	= 40,000,
Belgium	360,000,	= 14,000,	300,000,	= 12,000,	33,000,	= 1,000,	244,000,	= 10,000,
Italy	730,000,	= 29,000,	170,000,	= 7,000,	170,000,	= 7,000,	709,000,	= 28,000,
Switzerland	70,000,	= 3,000,	40,000,	= 2,000,	18,000,	= 700,	55,000,	= 2,000,

and divided among the respective populations this would give the following proportions *per capita*:—

[000's omitted.]

Countries.	Gold Coin.	Silver Coin.	Fractional Currency.	Bank Notes Uncovered.
	Frs. c. = £ s. d.	Frs. c. = £ s. d.	Frs. c. = s. d.	Frs. c. = £ s. d.
France	117 30 = 4 13 10	90 70 = 3 12 17	5 30 = 4 3	26 40 = 1 1 1
Belgium	62 60 = 2 10 0	52 20 = 2 1 9	6 0 = 4 10	42 40 = 1 13 11
Italy	25 60 = 1 0 6	6 0 = 0 4 10	6 0 = 4 10	25 0 = 1 0 0
Switzerland .	23 0 = 0 18 4	16 30 = 0 13 0	6 0 = 4 10	18 30 = 0 14 8

The total coinage of silver five-franc pieces represents the following nominal values :—

[000's omitted.]

Countries.	Coined previous to the Year 1866.	Coined during the Period 1866-84.	Total.
	Frs. = £ stlng.	Frs. = £ stlng.	Frs. = £ stlng.
France	4,435,100, = 177,000,	626,800, = 25,000,	5,061,900, = 202,000,
Belgium	145,200, = 6,000,	350,500, = 14,000,	500,700, = 20,000,
Italy	184,600, = 7,000,	359,100, = 14,000,	543,700, = 22,000,
Switzerland..	2,500, = 100,	8,000, = 300,	10,500, = 400,

M. Haupt estimates the composition of the monetary circulation in Italy at the commencement of the year 1885 as follows :—

	Lire. = £
Gold in the bank	305,000,000 = 12,000,000
„ held by State Treasuries and in circulation	430,000,000 = 17,000,000
Silver five-franc pieces in bank	49,000,000 = 2,000,000
„ circulation	80,000,000 = 3,000,000
Fractional currency in bank	15,000,000 = 600,000
„ circulation	155,000,000 = 6,000,000

In addition it is stated that the value of the old piastres still existing in the country amounts to 25 million lire, and of bronze money to 76 million lire, making a total of about 4 millions sterling.

In Germany the stock of money in 1870 was composed as follows :—

	—		Proportion to Total.
	Marks.	£ stlng.	Per cent.
Gold	91,000,000 =	4,500,000	4·0
Silver	1,500,000,000 =	75,000,000	65·7
Bronze.....	85,000,000 =	4,200,000	3·7
Foreign coin	40,000,000 =	2,000,000	1·8
Reserves in the Bank of Hamburg....	36,000,000 =	1,800,000	1·6
	1,752,000,000 =	87,500,000	76·8
Treasury notes	171,000,000 =	8,500,000	7·5
Bank notes without metallic cover	359,000,000 =	17,900,000	15·7
	2,282,000,000 =	113,900,000	100·0

Divided among the population existing in that year, the proportion of the circulation *per capita* was 58 marks, or 2*l.* 18*s.*, and this proportion rose to 66 marks at the end of 1884. At the latter date the composition of the circulation was as follows:—

	—		Proportion to Total.
	Marks.	£ stlng.	Per cnt.
Imperial gold coin	1,500,000,000 =	75,000,000	51·6
Bars and foreign gold coin	72,000,000 =	3,600,000	
Thalers, including Austrian thalers	450,000,000 =	22,500,000	14·7
Imperial silver coins	442,000,000 =	22,100,000	14·5
Nickel and bronze money	40,000,000 =	2,000,000	1·3
	2,504,000,000 =	125,200,000	82·1
Imperial treasury notes	145,000,000 =	7,250,000	4·8
Bank notes without metallic cover	401,000,000 =	20,000,000	13·1
	3,050,000,000 =	152,450,000	100·0

The above estimates have been made by M. Haupt, and, as regards the figures representing the amount of gold, they appear to be accurate and trustworthy, and have been arrived at in a careful and conscientious manner by deducting from the coinage (1) the amount of gold melted down in European and American mints to the value of 161 million marks; (2) the stock in European banks to the value of 26 million marks; (3) the amount consumed in the arts and manufactures, viz., 100 million marks; and (4) the 120 million marks locked up in Spandau. Dr. Soetbeer is of opinion that the value of the thalers, the circulation of which prevents the completion of the monetary reform in Germany, represents a total of 400 millions instead of 450 millions of marks as stated by M. Haupt.

In the United States, when the law was passed fixing the date of the resumption of specie payments and the measures to be adopted in carrying it into effect, the production of silver had increased in very considerable proportions; and it was from the date of the passing of this Act that the depreciation of silver became more and more accentuated. It would be interesting to study the differences in the monetary circulation of the United States subsequent to the passing of the Silver Act. The following table will show the amount of gold and silver coined in each year from 1878 to 1884, and the value of the silver dollars held by the Treasury on the 30th September in each year:—

Years.	Gold Coinage.		Silver Coinage.		Amount of Silver Standard Dollars held by Treasury.	
	$	£ stlng.	$	£ stlng.	$	£ stlng.
1878	52,798,980 =	10,999,000	28,291,000 =	5,894,000	12,155,205 =	2,532,000
'79	40,986,912 =	8,539,000	27,227,883 =	5,672,000	31,806,774 =	6,626,000
'80	56,157,734 =	11,699,000	27,942,437 =	5,821,000	47,784,744 =	9,955,000
'81	78,733,864 =	16,403,000	27,649,767 =	5,760,000	66,092,667 =	13,769,000
'82	89,413,447 =	18,628,000	27,783,389 =	5,786,000	92,228,649 =	19,214,000
'83	35,936,927 =	7,487,000	28,111,149 =	5,856,000	114,587,372 =	23,872,000
'84	27,932,824 =	5,819,000	28,773,000 =	5,994,000	142,926,725 =	29,776,000

The subjoined statement, taken from the report of the Controller of the United States currency, shows the amount of coin and currency in the country and its distribution in the Treasury on the 1st January, 1879, and on the 1st November, 1884:—

	1st January, 1879.		1st November, 1884.	
Gold coin and bullion—	$	£ stlng.	$	£ stlng.
Total amount	278,310,126 =	57,980,000	585,611,872 =	122,003,000
In the Treasury	112,703,342 =	23,480,000	134,670,790 =	28,056,000
Silver coin and bullion—				
Total amount	106,573,803 =	22,203,000	275,735,439 =	57,445,000
In the Treasury	32,419,351 =	6,754,000	176,919,979 =	36,858,000
Legal tender notes and national bank notes—				
Total amount	670,472,690 =	139,680,000	680,240,829 =	141,717,000
In the Treasury	44,425,655 =	9,255,000	26,258,827 =	5,470,000

VIII.—*The National Wealth of France compared with other Countries. By* E. Fournier de Flaix. (*Translated from the Journal de la Société de Statistique de Paris, December*, 1885.)

It was in 1815 that a celebrated writer and financier, the Chevalier de Hennet, observed "The capital of the English national debt now amounts to about 800 millions sterling, and its revenue derived from taxation to 60 millions, while France can with difficulty raise more than 24 millions. Truly it may be said that the finances of France are a mere bagatelle compared with those of England, and in matters financial the French are but tyros while the English are masters."

During the latter half of the eighteenth century the practice of comparing the resources and financial condition of France with those of England became almost a mania. The Marquis de Mirabeau and Letrosne, who among others devoted considerable attention to this subject, without it may be observed being in possession of all the data indispensable to such a comparison, gave it as their opinion that the national wealth of France far exceeded that of England; and a little later during the wars of the revolution and the Empire this question was warmly discussed. At this period English writers and statesmen, with but few exceptions, Sinclair among the number, united in agreeing as to the financial superiority of England. Adam Smith found that the capital of the English national debt had assumed very vast proportions, and we have it on his authority that on the 1st January, 1775, it had amounted to 129,446,323*l.*, and he predicted that it would be impossible ever to liquidate it. Twenty-three years later, on the 1st January, 1789, the capital of this debt had increased to the enormous amount of 468,461,852*l.* The consideration of such amounts as these was bewildering to the minds of the French

economists and politicians, as the condition of their country, both in an economic and financial point of view, did not admit of any comparison being drawn between France and England in this respect. "France," said Crétet, "is without credit even in perspective." But French economists and financiers consoled themselves with the reflection that a financial crisis would inevitably occur in England, and that the time would come when it would be impossible for her to contract any fresh liabilities. On the 1st January, 1817, however, the English national debt had risen to 861,039,049*l.*, or an increase of nearly 400 millions since the year 1798.

In view of these figures it must be admitted that the Chevalier de Hennet was only expressing the universal opinion when he stated that in finance the French were tyros and the English masters. Since 1815, however, a very considerable change has taken place, and we now find that the capital of the French national debt, not counting the treasury bills and the floating liabilities, is greater than the consolidated debt of England, while the interest and the expenses of management of this debt are easily met, although they absorb annually an amount greatly in excess of the 24 millions, beyond which the Chevalier de Hennet declared seventy years ago that France would be unable to raise her revenue. It is evident, therefore, that since the time of De Hennet there has been a very marked increase of wealth, and this is indirectly shown by the development of public credit and by the augmentation of the public revenue, which in 1884 yielded an amount of 124 millions sterling; and also by the fact that the country now pays this enormous amount with as great a facility as it met the taxation of seventy years ago, which was no more than 24 millions.

It will be unnecessary at this moment to undertake any minute inquiry into the causes which have been instrumental in effecting a change, the importance of which cannot be over estimated. The examination of these causes belongs more to the domain of political economy than to that of statistics, and it is only in glancing at them in connection with a recent publication that we have been enabled to realise their importance, and to demonstrate numerically how significant have been their effects.

The figures themselves, though they may not be strictly accurate in every particular, possess two advantages; on the one hand they enable us to obtain a comparatively near approximation to a correct estimate of the increase of French wealth since the time of the revolution, at the same time furnishing us with the means of establishing the most interesting comparisons with other countries; and on the other hand they indicate even more clearly the progress of this increase, and enable us to test the certainty of the various methods employed in computing national wealth.

The present review will therefore be divided into three parts. The first will be devoted to an examination of the methods of estimating the wealth of the various countries; the second to a study of the increase of wealth in France, and the progress of this increase since 1789; and the third to a comparison of the results

obtained in France with those in other countries, and particularly England.

The idea of comparing the resources of different countries, their accumulated wealth, and the means of acquiring it appears at first to have been essentially political and empirical, and it was only towards the end of the seventeenth century that it was ever heard of beyond the threshold of council chambers. Machiavelli himself, who lived and wrote in the midst of people, at that time the richest in Europe, appears to have looked upon wealth merely as an instrument of war. It was in fact the great wars of the end of the reign of Louis XIV that gave an impetus to these valuations, and induced people to look into the question of the best methods of arriving at a near approximation to an absolutely correct account of national wealth. Of the three systems of valuation most in favour at the present day, two actually date from this period.

The first of these methods is to have an inventory made on a specified date by competent valuers at each census enumeration, as is now so successfully adopted in the United States; and here we may observe that this system was initiated in France by Vauban at the beginning of the eighteenth century. The second is to base an estimate of national wealth on the income tax assessments. The income being stated, the capitalised wealth may be arrived at by a simple process of calculation. Even at the time of Davenant, an estimate could be formed of national wealth based upon the returns of the poor rates, the land tax, and the tithes.

Of these two methods, the second is in perfect harmony with the various national fiscal systems, in fact it may be said to be the direct outcome of them; but this is not the case as regards the former method, which is perfectly independent of all fiscal considerations, and yet the census as it is taken in the United States is one of the instruments employed in establishing the real and personal property taxes.

During the eighteenth century in France the *dixième* and *vingtième* taxes and the *tailles* themselves, if they had been made universal as M. de Machault suggested, would have constituted as complete and useful an instrument for the computation of national wealth as the income tax itself.

In England the imposition of the income tax towards the end of the eighteenth century furnished the means of estimating the amount of national wealth, and above all of determining its progressive increase. But this method of valuation is necessarily somewhat incomplete and uncertain, as there is a large amount of property in England not liable to income tax or which escapes assessment, and of capital which is not treated in the income tax returns as income yielding.

In Germany the two combined taxes the *Classensteuer* and the *Einkommensteuer* furnish a basis of estimation which, if not absolutely perfect, is at least a more accurate and reliable one than that supplied by the income tax returns.

France perhaps is the only country whose fiscal system is such as to render it possible to ground any accurate calculation as to the extent of its wealth, and to determine with any degree of

precision its progressive increase. We will take first the duties on the transfer of property by death, and on this point we may observe that in no European country were succession duties imposed earlier than in France, where they were first levied ninety-five years ago, or a more complete system of administration established with a view to prevent either miscalculation or the evasion of the duty. It may be said generally that although perhaps a few properties still remain untaxed, every description of wealth is actually subjected to this tax, while in other countries either the imposition of succession duties is of too recent a date, or their application is such as to render it almost impossible to use them as an accurate basis for any useful comparison, except perhaps in the case of England, where however the system of levying is very different to that adopted in France.

The idea of employing the amounts annually subject to succession and legacy duties as a means of estimating the accumulation of a nation's wealth, first originated with Porter in his "Progress of the Nation," and his example has since been followed by Mr. Giffen in his valuable paper on the recent accumulation of capital in the United Kingdom, read by him before the Statistical Society on January 15th, 1878, and finally, considerable attention and discussion has been devoted to this question by M. de Foville, one of the most distinguished members of the Paris Statistical Society.

This method of valuation may be said to be connected with other branches of statistics, and attains an essentially scientific character. The succession duties actually only furnish us with the means of making a valuation of the wealth of a country during a given year, on the basis of the property transmitted *during* that year. The question then arises, how is it possible to estimate the total wealth of a country by the returns of one single year, and the answer is supplied by that branch of statistics which deals with the question of population and vitality. It becomes necessary to calculate the exact number of years that must elapse before each individual property falls under this tax, and the average duration of a generation must be determined.

It will be easily understood that this question has provoked considerable argument and discussion, and much divergence of opinion has been expressed with regard to the exact period to be taken; it may however we think be safely assumed that during the course of thirty-five or thirty-six years all properties would have contributed their quota to the exchequer in the shape of legacy and succession duties. Consequently if we multiply by the factor 35 or 36 the total value of the capital subject to these duties, we arrive at an approximately accurate valuation of the wealth of a country in that year, since one thirty-sixth part only of the properties annually pays the tax on an average.

Such therefore is the method we shall employ in estimating the amount of wealth from the succession and legacy duty assessments, and although it has many advantages to recommend it, it certainly has many elements of uncertainty, such for example as evasion of the duty, doubt as to the exact factor to employ, and finally the fluctuations in the rates of mortality.

As regards the latter, if the valuations are calculated on the succession and legacy duty assessments of a year characterised by an excessive mortality, or in which the proportion of deaths among the opulent classes of the community was unduly high, or during which some exceptionally large properties lapsed through death, and this is by no means of rare occurrence, the result must obviously be a very considerable over estimate. But the reverse would be the case if a year were taken in which the rate of mortality generally was low, and in which no particularly large fortunes changed hands through death.

It is evident therefore that it would be unsafe to rely solely upon this method of valuation, without employing other means to verify the results produced by it. The fiscal system, as we have pointed out, supplies us with many other methods of valuation, one of which is of considerable importance. This is the system of levying the taxes on houses and lands. The *impôt foncier* in France is essentially a tax on the income, and is so levied by a competent administration, that it is possible to arrive at a near approximation to an absolutely correct account of the extent of real property in France.

In 1879, at the instance of M. Leon Say, who was then Minister of Finance, a commission was appointed to inquire into the extent of real property, and its scope was to extend not only over the property built upon, but also upon that not built upon, in such a manner as to afford a clear indication of the aggregate value of such property. There is however a second method of arriving at a valuation of public wealth in France, and this is furnished by the tax on certain kinds of movable or personal property, the *impôt sur les revenus des valeurs mobilières*, by which the amount of personal property can be estimated.

The two other instruments which are employed in estimating the accumulations of wealth, namely, the income tax in England, and the census in the United States, cannot be said to be entirely trustworthy, for example in the latter country where a valuation is attempted at every enumeration, it is quite certain that no small amount of personal property escapes the notice of the valuers, and the result must therefore be unsatisfactory; while as regards the United Kingdom the income tax assessments, though certainly affording a convenient basis for such a proceeding, throws no light whatever upon one very important element of wealth, namely, the income of the non-income tax paying classes derived from capital. The object of the income tax in England, like that of the *contribution mobilière* in France, is to levy a certain amount on the income of the taxpayers, and though the two are similar in principle, they differ in form, that is in the mode of estimating the income. In France the basis of the *contribution mobilière* is the dwelling of the taxpayer, while in England the declarations of the individuals are taken.

The day may however yet come when it will be possible to form, as Charles Dupin attempted, an approximation of the producing power of the population based upon the returns showing the population classified according to professions, but at present

unfortunately all we can do is to proceed to a valuation of national wealth on the basis of the income derived from capital.

In looking into the question of the extent of the increase of wealth in France, we find that until the year 1820 no official data existed on this subject, but according to unofficial valuations made by Lavoisier and Tolosan, revised by Moreau de Jonnes and Leonce de Lavergne, it was estimated that the extent of French property amounted in 1789 to 1,520 millions sterling, distributed as follows:—

	Millions.
Houses and lands in rural districts	840
,, towns	280
Personal property.....	400
Total	1,520

For information relating to the period 1789-1815, we are ndebted to the valuations made by Chaptal, and it is stated on his authority that in the latter year the amount of French wealth had increased to 1,800 millions, distributed as follows:—

	Millions.
Houses and lands in rural districts	1,040
,, towns	320
Personal property.....	440
Total	1,800

It will be observed from the foregoing that the increase is chiefly in the value of rural property, while the towns had contributed but little, owing perhaps to the fact that trade and industry were in a condition far less flourishing during the year 1815 than in 1789.

From 1815 to 1826 the increase in French wealth was very marked, attributable in great measure to the continuance of peace, and confidence in the existing government. In the latter year the amount subject to succession duties had risen to 72 millions, which multiplied by the factor 36 represents 2,592 millions, and is therefore an augmentation of 792 millions over the year 1815. But the public revenue derivable from ordinary taxation had increased from 29 millions to 39 millions. From 1826 to 1882 the amount annually subject to succession duty had risen from 72 millions to 252 millions, which amount capitalised represents a total of 9,072 millions, or an increase of 6,480 millions over the year 1826.

It is true that according to French law it is the gross and not the net value on which succession duties are levied, and at first sight this may appear a somewhat unfair method of taxation, but the amount of property that annually escapes assessment, such for instance as bonds to bearer, goods, furniture, coin, &c., is considered to be at least equivalent to the amount of liabilities which would otherwise have been deducted, and it may here be observed that this was the argument on which the administration originally founded a system of taxation which it would otherwise be impossible to justify.

It will be seen from the foregoing that French capital had trebled itself in the fifty-seven years comprised between 1826 and 1882, and the report of the land commission which was appointed in 1879, and to which we have already referred, affords us the means of verifying these figures. According to this report we find that the value of property not built upon amounted in 1879 to 3,960 millions, and in the same year the value of the property built over represented a total of 1,800 millions, while the capitalised value of personal property of all kinds in 1882 on which duties on transfer by death were paid amounted to 4,274 millions. If we add these amounts together we arrive at an aggregate of 10,034 millions, or 962 millions in excess of the amount specified above as representing the total wealth of France in 1882, based on the total amount of succession duties.

We may take this as a decided confirmation of the accuracy of the valuation, and it may be added that of the three items which have been taken to make up the total of 10,034 millions, the last is certainly rather below than above the mark, while as regards the first some exception may perhaps be taken to it as being placed at too high a figure. Assuming that this is the case, if we deduct from the value of the property not built over the 962 millions, which is the difference between the two estimates, we arrive at the exact valuation based upon the amount of succession duties, namely 9,072 millions, and this may be considered as rather an under than an over estimate of French wealth. We base our assumption on the fact that personal property in France now forms a most important element of national wealth, and also on the accuracy of the returns made for succession duties levied on this particular description of property. Again, it must be remembered that assessments for succession duties are made on the declarations of individuals who would be more disposed to return the property to which they had become entitled at a figure rather below than above its actual value, or an inventory may be taken by the State, under which, in the majority of cases, the property would be assessed at not more than two-thirds of its actual value.

In connection with the question of the increasing importance of personal property in France, it may be observed that the returns showing the value of the property annually subject to succession duties afford an excellent basis for comparison. The following table will show the extent of real and personal property on which these duties were paid during the years 1826 and 1882:—

[000's omitted.]

Description of Property subject to Succession Duties.	1826.	1882.
	£	£
Real	43,150	134,203
Personal	28,304	118,729
Total	71,454	252,932

It will be seen from the above that during the period comprised between the years 1826 and 1882, the amount of real property on which succession duties were paid had increased to the extent of 91 millions, or at the rate of about 210 per cent., while the value of personal property had increased to the extent of 90 millions, or in the ratio of about 320 per cent.

We will now trace the progress of this increase, and for this purpose will divide the fifty-six years which have elapsed since 1821 into seven periods:—

First Period, 1826-33.

[000's omitted.]

	Personal Property.		Real Property.	
	1826.	1833.	1826.	1833.
	£	£	£	£
Successions	18,283,	20,973,	35,212,	37,521,
Legacies	10,021,	10,956,	7,938,	8,931,
Total	28,304,	31,929,	43,150,	46,452,
Increase in 1833	3,625, or 13 per cent.		3,302, or 8 per cent.	

Second Period, 1834-41.

[000's omitted].

	Personal Property.		Real Property.	
	1834.	1841.	1834.	1841.
	£	£	£	£
Successions	20,766,	24,613,	37,609,	41,004,
Legacies	11,333,	13,040,	8,816,	11,362,
Total	32,099,	37,653,	46,425,	52,366,
Increase in 1841	5,554, or 17 per cent.		5,941, or 13 per cent.	

Third Period, 1842-49.

[000's omitted.]

	Personal Property.		Real Property.	
	1842.	1849.	1842.	1849.
	£	£	£	£
Successions	26,730,	29,420,	43,994,	46,166,
Legacies	13,762,	13,027,	11,362,	12,587,
Total	40,492,	42,447,	55,356,	58,753,
Increase in 1849	1,955, or 5 per cent.		3,397, or 6 per cent.	

Fourth Period, 1850-57.

[000's omitted.]

	Personal Property.		Real Property.	
	1850.	1857.	1850.	1857.
	£	£	£	£
Successions	32,203,	38,517,	48,811,	51,177,
Legacies	13,996,	16,218,	12,346,	13,391,
Total	46,199,	54,735,	61,157,	64,568,
Increase in 1857	8,536, or 19 per cent.		3,411, or 6 per cent.	

Fifth Period, 1858-65.

[000's omitted.]

	Personal Property.		Real Property.	
	1858.	1865.	1858.	1865.
	£	£	£	£
Successions	44,479,	54,980,	58,246,	66,181,
Legacies	16,204,	18,634,	14,439,	15,387,
Total	60,683,	73,614,	72,685,	81,568,
Increase in 1865	12,931, or 21 per cent.		8,883, or 12 per cent.	

Sixth Period, 1866-73.

[000's omitted.]

	Personal Property.		Real Property.	
	1866.	1873.	1866.	1873.
	£	£	£	£
Successions	58,201,	69,245,	66,182,	79,222,
Legacies	19,421,	22,882,	16,566,	18,424,
Total	77,622,	92,127,	82,748,	97,646,
Increase in 1873	14,505, or 19 per cent.		14,898, or 18 per cent.	

Seventh Period, 1874-82 (*Eight Years*).

[000's omitted.]

	Personal Property.		Real Property.	
	1874.	1882.	1874.	1882.
	£	£	£	£
Successions	74,332,	94,723,	81,928,	116,353,
Legacies	22,879,	24,005,	16,945,	17,851,
Total	97,211,	118,728,	98,873,	134,204,
Increase in 1882	21,517, or 22 per cent.		35,331, or 35 per cent.	

It appears from a comparison of the above statements that the increase in the value of property assessed to succession and legacy

duties was greater in the last than in any of the previous periods, particularly as regards real property, and this notwithstanding the financial crisis of 1881. For the year 1883 we are only in possession of the provisional returns of the values of succession and legacy duties, which are subject to rectification in future years, but from these we gather that the total amount assessed to succession duties was in excess of that for 1882, while as regards the year 1884, it will probably be found when the necessary data are available, that the value of real and personal property has considerably increased. The increase shown in the period comprised between 1872 and 1882 is very significant. As regards the value of personal property there is nothing remarkable in the rate of increase, as it is perfectly in accordance with established facts, but this cannot be said as to the increase in the value of real property. In this case the marked increase is in great measure due to the enhanced value of building lands. Be this as it may, there can be no question as to the value of the return of succession and legacy duties as an instrument for the valuation of French national wealth.

We will now look into the question of the accumulations of capital in the United Kingdom, and see how far they compare with the corresponding particulars relating to France, premising our observations by remarking that the same facilities do not exist in England for arriving at a comparatively exact valuation of national wealth as in France. Since the end of the seventeenth century valuations of national wealth more or less incomplete and unsatisfactory have been made. About this period Davenant estimated the income of the United Kingdom at 44 millions sterling. Decker in the middle of the following century placed it at 64 millions; and Pitt, towards the end of the eighteenth century, at 120 millions, Ireland being excluded in these estimates. As regards the capitalised income of England and Scotland, it was estimated by Pitt at 1,125 millions, and by Dr. Beeke at 995 millions.

At the time of the wars of the revolution and of the empire in France, a considerable impetus was given to the development of English wealth, for we have it stated on the authority of Colquhoun, that in 1814 the national wealth had increased to 2,700 millions. The income tax which was established by Pitt formed the basis on which these estimates were founded, and it may be added that the majority of statisticians and economists have accepted Colquhoun's estimate as practically correct.

From 1815 to 1843, a period during which the tax was not levied, many valuations of capital were made in England, among others by Lord Liverpool, Parnell, Pablo Pebrer, Bailly and Porter. Parnell and Colquhoun were of opinion that about the years 1830 and 1834 there was a considerable diminution of income, while Bailly, who may be considered as one of the highest authorities on the subject of his time, inclined to the belief that the amount in the year 1834 was not greater than it was in 1814. At the time when Porter wrote his celebrated work the "Progress of the Nation," a considerable improvement was manifest. He estimated the value of personal property at 2,200 millions, and of real property at 2,400 millions, or a total of 4,600 millions.

In the same year the amount of real property in France, according to the returns of succession duties, did not exceed 2,000 millions, and of personal property 1,440 millions. It must, however, be borne in mind that Porter reckoned the capital as forty-five times the amount annually subject to legacy duties, while in France it has been taken at thirty-six times only. It is true also that the systems employed of levying the duties themselves are by no means identical in these countries, for example in France the tax is imposed on the gross value of the capital without any deduction of liabilities, while in England the duties are levied on the gross value, only so far as the personal property is concerned, the value of the real estate being calculated according to the degree of affinity, the small legacies being exempt from duty, and the debts being invariably deducted. Thus in 1882 we find that the total capital subject to legacy and succession duties in England amounted to 147,603,000*l.*, and if we treat this amount in the same way as we have done in the case of France, that is, multiply it by the factor 36,* we arrive at the following amount as representing the value of real and personal property in that country, namely, 5,313,708,000*l.*, which is considerably below the mark. Moreover, the rate of increase would appear to be less accentuated than it is in France, for in 1870 the capital in England subject to these duties amounted to 124 millions, and there would therefore only have been an augmentation in twelve years to the extent of 24 millions.

In 1878 a valuation was made by Mr. Giffen, who took as a basis for his estimates the income tax assessments and the succession and legacy duty returns. He estimated the value of the property of the United Kingdom at 8,548 millions; and this it must be observed is inclusive of the capitalised incomes of the non-income tax paying classes derived from capital, of incomes derived from trades and professions, from foreign investments, and of the value of movable property not yielding income, and of Government and local property. The estimated income from capital, exclusive of that derivable from wages of superintendence and salaries corresponding to this amount, was 571 millions.

In 1884 Mr. Leone Levi published a work dealing with the question of the distribution of wealth, and he stated that the total amount of incomes in 1880 assessed to income tax in the United Kingdom, exclusive of the incomes from the wages of superintendence and salaries, was 577 millions, and in 1882 this had increased to 601 millions. From the year 1868 to 1882 the aggregate incomes so assessed exhibited a gradual but steady increase, as the subjoined statement will show:—

[000's omitted.]

Years.	Amount of Income. £
1868	430,368,
'70	444,914,
'75	571,056,
'78	578,294,
'80	576,896,
'82	601,400,

* But should not the multiple be much more for England?—Ed. *Jl.*

Mr. Giffen, as we have shown, estimated the amount of property in the United Kingdom in 1878 at 8,548 millions, and looking at the increase which has taken place since then in the gross amount of property and profits assessed, we are of opinion that it would not be far short of the mark to estimate it for the year 1882 at 9,000 millions, a figure slightly below the estimated national wealth of France in the same year, which was 9,070 millions. From whence it follows that France at the present day can compare very favourably with the United Kingdom as regards the extent of her wealth.*

The following tabular statement will show a comparison of the various stages of the development of wealth in England and France since 1789 :—

[000's omitted.]

Years.	United Kingdom.	France.
	£	£
1789	1,120,000,*	1,520,000,
1815	2,800,000,	1,800,000,
'42	4,600,000,	3,400,000,
'65	7,680,000,	5 560,000,
'75	8,562,000,	7,090,000,
'82	9,000,000,	9,070,000,

* Estimate for 1798, excluding Ireland.

There are one or two points of considerable interest in connection with this comparison of national wealth. In the first place it will be seen that in 1789 the advantage was on the side of France, while in 1815 the positions were reversed and England commenced to take the lead, and maintained her supremacy until 1875 ; since which period France has gone on steadily increasing her capital, until at the present day it is in excess of that held in the United Kingdom. Again, in spite of the events of 1870-71, so disastrous to France, the national wealth in that country has increased more rapidly in the decennial period ending 1882 than in England, and this is clearly evidenced by the returns showing the amount of capital upon which legacy and succession duties have been paid in the United Kingdom. Taking the period 1870-82, we find that the amount of property subject to these duties attained its maximum in 1878, when it exceeded 161 millions, while in 1882 it was represented by a total of only 148 millions.

We will next take the case of the United States, which country, as we have before observed, possesses the data of regular valuations at every census, and the subjoined statement will show its population and wealth by decades from 1790 to 1880, together with the average property to each person :—

* This comparison between France and England appears to be insufficiently considered and developed. The capital of the United Kingdom on the basis of Mr. Giffen's calculation in 1878 must be greatly more than is here stated.—Ed. *Jl.*

Years.	Population.	Amount of Property.	Average Property to each Person.
		£	£
1790	3,929,827	150,000,000	38
1800	5,305,937	214,000,000	40
'10	7,239,814	300,000,000	41
'20	9,638,191	376,000,000	39
'30	12,866,020	530,000,000	41
'40	17,069,453	753,000,000	44
'50	23,191,876	1,427,000,000	61
'60	31,500,000	3,232,000,000	102
'70	38,558,000	6,014,000,000	156
'80	50,497,057	8,512,000,000	168

It will be seen therefore that the extent of accumulated wealth at the present day is much the same in the United Kingdom, France, and the United States. It is, however, relatively much greater in England, seeing that the extent of British territory only represents about three-fifths of the French area, and also that her population is only about 35 millions as compared with 38 millions in France. The difference is still more marked in the United States, whose area is nineteen times as large, and whose population is 12 millions in excess of that of France. The average amount of property per head of the population is as follows: 244*l.* in England, 236*l.* in France, and 168*l.* in the United States.

A work recently issued by M. Maffeo Pantaleoni, Professor of Science at the University of Venice, contains much valuable information as to the amount of property in Italy. In this publication M. Pantaleoni devotes considerable attention to the consideration of the accumulation of national wealth, and its progressive increase, and has produced some interesting tables showing the amounts annually subject to legacy and succession duties in Italy. The following tabular statement taken from the work in question will show the extent of these amounts in each of the years 1877 and 1881:—

[000's omitted.]

	1877.	1881.
	£	£
Successions	33,986,	35,898,
Legacies	8,202,	7,238,
Total	42,188,	43,136,

In Italy the duties are levied in much the same manner as they are in France, only they are payable on the net available value of the property and not on the gross. If we estimate the capitalised value of property in Italy upon the scale used in the foregoing calculations, that is multiplying the amounts assessed by the factor 36, we obtain the following results:—

[000's omitted.]

	1877.	1881.
	£	£
Successions	1,223,496,	1,292,328,
Legacies	295,272,	260,568,
Total	1,518,768,	1,552,896,

M. Pantaleoni is of opinion that this is rather an under than an over estimate of the national wealth of Italy, and he is doubtless correct in his assumption, as owing to a lax system of administration far more opportunities exist in Italy than in France of evading payment of the duties. He considers that this estimate should be increased by at least a quarter, which would even then scarcely bring it up to its correct amount. M. Pantaleoni endeavours to verify the foregoing estimate, employing for the purpose the returns showing the value of the property annually subject to the land tax (*impôt foncier*) in 1881, and according to these the amount of property not built over appears to represent an aggregate value of 1,080 millions, and property built over 400 millions. There would then only remain about 72 millions to represent the value of personal property in the kingdom, which is manifestly absurd. It is evident therefore that M. Pantaleoni is correct when he states that a vast amount of property annually evades the payment of succession and legacy duties, even if he places the extent of these evasions at an unduly high figure in stating that only 50 per cent. of the property annually chargeable with this duty actually pays it.

In Germany the increase of wealth has been very rapid, and this has been particularly noticeable in Prussia, but here again the means of determining its actual development and progress are somewhat defective. According to the estimates of M. Soetbeer, which were published in the last edition of Dr. Neumann-Spallart's Uebersichten der Weltwirthschaft, the increase in the national income of Prussia since 1872 has been as follows:—

[000's omitted.]

Years.	Amount.	Years.	Amount.
	£		£
1872	348,400,	1877	396,600,
'73	359,700,	'78	403,400,
'74	376,600,	'79	404,200,
'75	381,400,	'80	407,400,
'76	392,800,	'81	411,400,

The amount for 1881 only represents about a third of the aggregate gross income of the United Kingdom, and about two-fifths of the total gross income of France. Dr. Soetbeer's calculations are confirmed in other ways. From 1873 to 1884 the net budget receipts only increased from 33 millions to about 41 millions. It would be impossible to check Dr. Soetbeer's valuation

by the succession and legacy duty returns, as they allow of no estimate being formed on the subject.

It would appear therefore that the population of Prussia, which now amounts to 28 millions of people, had increased in greater proportion than the national wealth, and that incomes had increased more rapidly than capital. The same may perhaps be said as regards the United States, while facts point entirely the other way in England and France.

There are many valuable conclusions to be drawn from this inquiry into the question of national wealth, and they may be briefly summarised as follows:—

(1.) The science of statistics possesses in the succession duties, as they are levied in France, a most valuable instrument for the computation of wealth, but at the same time it must be added that the results obtained by this method of valuation should at all times be verified by others.

(2.) Wealth increased very rapidly in England towards the commencement, and in France after the middle of the present century.*

(3.) Notwithstanding the constantly increasing population in the United States and in Prussia, the progressive increase of wealth, particularly in the former country, where an immense track of very fertile land has been placed under cultivation, and which has benefited by the introduction of at least 400 millions of foreign capital, has not been greater than that of England and France.

(4.) France has been enabled to repair the losses she sustained from her revolution and her wars, while her fiscal organisation, her financial and economic *régime*, which may be regarded as practically dating from the revolution, have been the means of furnishing statistical science with a most valuable and accurate instrument for estimating the fluctuation of national wealth, and consequently the economic condition of the country.

(5.) It is far from improbable that during the next century a very considerable development will be observed in the wealth of Germany and Italy, which countries in some things are far in advance of England and France, particularly in the matter of their credit and provident institutions.

In conclusion we may observe that all the trials through which France has passed are directly traceable to wars, disorder, despotism or restriction on the liberty of exchange, while on the other hand she owes the whole of her success and prosperity to the influence of peace, respect for the rights of all, free institutions, and above all to commercial liberty.

* The most rapid increase in England was between 1850 and 1875.—Ed. *Jl.*

IX.—*Additions to the Library.*

Additions to the Library during the Quarter ended 31st March, 1886, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial, and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.;* (f) *Periodicals, &c.*

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Journal of the Ministry of Finance. (Current weekly numbers.) (In Russian.) 1886	M. A. Vessélovsky, St. Petersburg
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Boletin de la Sociedad Geografica de Madrid. Novembre, Diciembre, 1885. Enero 1886	The Society
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Calendar Years, 1885-79:—*Numbers.*

Years.....	'85.	'84.	'83.	'82.	'81.	'80.	'79.
Marriages No.	—	204,005	206,384	204,405	197,290	191,965	182,082
Births..... ,,	893,694	908,574	890,722	889,014	883,642	881,643	880,389
Deaths .... ,,	522,517	531,951	522,997	516,654	491,935	528,624	526,255

Quarters *of each Calendar Year*, 1885-79.

(I.) Marriages:—*Numbers.*

Qrs. ended last day of	'85.	'84.	'83.	'82.	'81.	'80.	'79.
March..... No.	39,063	41,538	44,096	39,820	38,043	41,238	35,956
June ..... ,,	51,910	53,639	48,057	52,905	50,370	45,844	46,623
September ,,	49,428	50,275	52,239	51,207	48,607	47,703	45,121
December ,,	—	58,553	61,992	60,473	60,270	57,180	54,382

(II.) Births:—*Numbers.*

Qrs. ended last day of	'85.	'84.	'83.	'82.	'81.	'80.	'79.
March..... No.	232,015	224,694	232,156	223,616	225,451	221,699	226,056
June ..... ,,	222,280	231,149	228,676	227,425	225,303	232,920	220,966
September ,,	218,204	225,454	214,233	220,382	215,966	219,023	218,668
December ,,	221,195	227,277	215,657	217,591	216,922	208,001	214,699

(III.) Deaths:—*Numbers.*

Qrs. ended last day of	'85.	'84.	'83.	'82.	'81.	'80.	'79.
March..... No.	147,911	132,097	146,832	140,121	138,312	145,787	155,916
June ..... ,,	132,202	127,946	133,789	125,107	120,811	125,366	132,003
September ,,	114,042	134,678	113,117	118,235	110,204	131,241	103,919
December ,,	128,362	137,230	129,259	133,191	122,608	126,230	134,417

Annual Rates of MARRIAGES, BIRTHS, *and* DEATHS, *per* 1,000 PERSONS LIVING *in the Years* **1885-79**, *and in the* QUARTERS *of those Years.*

Calendar YEARS, **1885-79**:—*General Ratios.*

YEARS.....	'85.	Mean '75-84.	'84.	'83.	'82.	'81.	'80.	'79.
Estmtd. Popln. of England *in thousands* in middle of each Year....	27,499,	—	27,132,	26,771,	26,414,	26,062,	25,714,	25,371,
Persons Married	—	15·4	15·0	15·4	15·5	15·1	14·9	14·4
Births	32·5	34·7	33·5	33·3	33·7	33·9	34·3	34·7
Deaths.....	19·0	20·4	19·6	19·5	19·6	18·9	20·6	20·7

QUARTERS *of each Calendar Year*, **1885-79.**

(I.) PERSONS MARRIED:—*Ratio per* 1,000.

Qrs. ended last day of	'85.	Mean '75-84	'84.	'83.	'82.	'81.	'80.	'79.
March	11·5	12·8	12·3	13·4	12·2	11·8	12·9	11·5
June.....	15·1	15·5	15·8	14·4	16·1	15·5	14·3	14·7
September	14·3	15·2	14·7	15·5	15·4	14·8	14·7	14·1
December	—	18·3	17·1	18·4	18·2	18·4	17·6	17·0

(II.) BIRTHS:—*Ratio per* 1,000.

Qrs. ended last day of	'85.	Mean '75-84.	'84.	'83.	'82.	'81.	'80.	'79.
March	34·2	35·6	33·2	35·2	34·3	35·1	34·6	36·1
June.....	32·4	35·5	34·2	34·3	34·5	34·7	36·3	34·9
September	31·5	33·8	33·0	31·7	33·1	32·9	33·8	34·2
December	31·9	33·7	33·2	32·0	32·7	33·0	32·1	33·6

(III.) DEATHS:—*Ratio per* 1,000.

Qrs. ended last day of	'85.	Mean '75-84.	'84.	'83.	'82.	'81.	'80.	'79.
March	21·8	22·8	19·5	22·2	21·5	21·5	22·7	24·9
June.....	19·3	20·2	18·9	20·0	19·0	18·6	19·6	20·9
September	16·5	18·6	19·7	16·8	17·8	16·8	20·3	16·3
December	18·5	20·3	20·1	19·2	20·0	18·7	19·5	21·0

B.—*Comparative Table of* CONSOLS, PROVISIONS, COAL, *and* PAUPERISM *in each* QUARTER *of* **1883-84-85.**

Quarters ending	Average Prices of: Consols (for Money) per 100*l.* Stock.	Discount charged by the Bank of England.	Wheat per Quarter in England and Wales.	Meat per Pound at the Metropolitan Meat Market (by the Carcase), with the *Mean* Prices. Beef.	Meat per Pound at the Metropolitan Meat Market (by the Carcase), with the *Mean* Prices. Mutton.	Coal (Seaborne) in the London Market per Ton.	Pauperism. Quarterly Average of the Number of Paupers Relieved on the *Last Day* of each Week. In-door.	Pauperism. Quarterly Average of the Number of Paupers Relieved on the *Last Day* of each Week. Out-door.
1883	£	£	*s. d.*	*d. d. d.*	*d. d. d.*	*s. d.*		
Mar. 31	102	3·84	41 3	5⅛—8⅛ 6⅝	5⅞—10⅛ 8	16 6	189,391	558,064
June 30	102⅛	3·57	42 8	5—8 6½	5¾—9½ 7⅞	16 9	172,858	537,495
Sept. 30	100⅛	3·88	42 5	5—8⅜ 6¾	5¾—10 7⅞	17 –	165,263	519,260
Dec. 31	101½	3·00	40 –	4¾—8 6⅜	5⅜—9½ 7½	17 9	178,715	518,070
1884								
Mar. 31	101¾	3·19	37 9	4½—7¾ 6⅛	5—8¾ 6⅞	15 3	186,636	536,767
June 30	101⅞	2·42	37 6	4½—7⅝ 6⅛	5⅛—9 7⅛	14 11	173,749	523,182
Sept. 30	100¾	2·00	35 11	4⅜—7¾ 6⅛	4⅞—8⅞ 6⅞	15 11	168,076	513,981
Dec. 31	100¾	4·17	31 7	4⅛—7½ 5⅞	4⅝—8 6⅜	15 11	181,776	518,811
1885								
Mar. 31	98⅞	4·24	32 9	4—7 5½	4¼—7½ 5⅞	15 9	189,718	546,688
June 30	98¼	2·75	34 10	4¼—6¾ 5½	4⅝—8⅛ 6½	15 9	173,498	524,628
Sept. 30	99⅞	2·00	32 10	3¾—6¾ 5¼	4¼—7¾ 6	14 10	167,185	513,326
Dec. 31	100	2·68	30 9	3⅜—6¾ 5⅛	3½—7 5¼	16 3	183,503	528,885

C.—*Special Average Death-Rate Table:*—ANNUAL RATE *of* MORTALITY *per* 1,000 *in* TOWN *and* COUNTRY DISTRICTS *of* ENGLAND *in each Quarter of the Years* **1885-83.**

	Area in Statute Acres.	Population Enumerated. 1881.	Quarters ending	Annual Rate of Mortality per 1,000 in each Quarter of the Years: 1885.	Mean 75-84.	1884.	1883.
In 134 Districts, and 57 Sub-districts, comprising the *Chief Towns*	3,184,419	15,444,808	March ..	22·3	24·1	20·5	23·2
			June	20·2	21·1	20·0	20·8
			Sept.	17·8	20·3	21·8	18·3
			Dec.	19·7	22·1	21·7	20·8
			Year	20·0	21·9	21·0	20·8
			Year	17·5	18·3	17·4	17·7
In the remaining Districts and Sub-districts of England and Wales, comprising chiefly *Small Towns* and *Country Parishes*	34,134,802	10,523,478	March ..	21·0	20·9	18·0	20·8
			June	17·9	18·8	17·3	19·0
			Sept.	14·4	15·9	16·5	14·5
			Dec.	16·7	17·6	17·6	16·6

Note.—In calculating these rates of mortality corrections are made for inequalities in the numbers of days in the different quarters of the year. The annual rates are the means of the four quarterly rates.

D.—*Special Town Table:*—POPULATION; BIRTH-RATE *and* DEATH-RATE *in each Quarter of* **1885**, *in* TWENTY-EIGHT *Large Towns.*

Cities and Boroughs.	Estimated Population in the Middle of the Year 1885.	Annual Rate to 1,000 Living during the Thirteen Weeks ending							
		4th April. (1st Quarter.)		4th July. (2nd Quarter.)		3rd October. (3rd Quarter.)		2nd Jan., 1886. (4th Quarter.)	
		Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
Twenty-eight towns	8,906,446	35·3	22·7	32·9	20·6	32·5	18·8	33·3	20·0
London	4,083,928	34·6	21·6	31·4	19·3	31·5	18·2	32·8	19·5
Brighton	114,672	28·4	18·0	25·6	15·8	24·5	16·1	25·8	18·4
Portsmouth	134,659	36·8	20·6	33·1	18·1	34·8	19·1	33·3	20·9
Norwich	91,215	35·8	27·1	32·2	19·3	31·8	16·9	34·5	17·9
Plymouth	76,045	31·7	23·7	31·5	22·0	29·8	20·0	29·3	23·6
Bristol	218,169	32·6	24·9	32·1	19·2	30·0	16·3	29·9	18·4
Wolverhampton	79,185	37·9	24·4	33·8	19·2	33·8	16·7	33·7	20·4
Birmingham	427,769	35·5	22·0	33·1	19·9	33·4	17·3	33·2	18·1
Leicester	136,147	36·3	22·3	35·1	18·1	32·6	22·3	33·2	16·5
Nottingham	211,424	39·3	22·3	38·0	18·9	35·7	16·6	37·6	21·9
Derby	89,691	37·3	18·6	34·8	15·7	31·3	17·3	33·7	20·7
Birkenhead	93,093	34·4	18·6	36·1	21·4	33·8	19·0	34·2	18·9
Liverpool	579,724	35·1	25·5	33·8	23·6	32·6	22·5	33·3	23·7
Bolton	110,085	38·4	23·6	32·1	18·8	34·3	15·6	33·3	25·3
Manchester	337,342	38·5	28·2	36·9	29·5	33·9	24·1	36·1	24·1
Salford	204,075	36·1	20·7	33·1	20·7	32·9	21·9	35·4	21·1
Oldham	126,390	37·5	26·0	35·9	23·1	34·8	16·8	34·4	22·1
Blackburn	112,574	37·3	23·1	34·9	25·2	37·7	18·0	36·7	20·8
Preston	100,406	40·3	30·1	39·8	27·0	38·1	25·5	38·5	25·8
Huddersfield	87,327	31·4	22·5	27·9	21·8	29·3	17·1	27·9	19·0
Halifax	77,378	29·0	22·3	29·2	20·3	28·5	17·0	28·5	19·1
Bradford	214,431	29·5	19·9	29·4	19·0	28·4	15·6	29·1	16·4
Leeds	333,139	35·3	21·2	33·7	20·3	34·2	18·7	34·3	19·6
Sheffield	305,716	37·8	21·2	34·1	22·5	33·3	20·0	34·9	19·1
Hull	186,292	34·0	19·5	34·8	18·2	32·6	14·8	34·0	16·3
Sunderland	125,327	39·5	33·9	40·1	22·7	36·9	20·4	34·5	18·3
Newcastle	153,209	39·8	27·1	39·0	31·8	36·6	24·2	37·8	21·3
Cardiff	97,034	45·2	32·9	41·2	25·5	43·6	22·7	42·3	21·6
Edinburgh	250,616	29·7	20·0	30·8	18·1	27·8	15·5	29·2	19·0
Glasgow	519,965	39·4	31·1	39·8	25·6	36·4	22·0	37·2	24·6
Dublin	353,082	30·6	34·0	29·6	30·0	27·7	22·9	27·3	27·0

E.—*Divisional Table:*—MARRIAGES *in the Year ending 30th September; and* BIRTHS *and* DEATHS *in the Year ending 31st December,* **1885,** *as Registered Quarterly.*

1	2	3	4	5	6	7
DIVISIONS. (England and Wales.)	AREA* in Statute Acres.	Enumerated POPULATION, 1881.	MARRIAGES in Quarters ending 31st December, 1884.	31st March, 1885.	30th June, 1885.	30th September, 1885.
ENGLD. & WALES....*Totals*	37,319,221	No. 25,974,439	No. 58,553	No. 39,063	No. 51,910	No. 49,428
I. London	75,362	3,816,483	9,669	6,573	8,894	9,373
II. South-Eastern	3,994,431	2,487,076	5,336	3,140	4,462	4,375
III. South Midland	3,201,325	1,596,259	3,210	1,769	2,620	2,634
IV. Eastern	3,211,441	1,343,524	3,346	1,628	2,170	2,119
V. South-Western	4,981,170	1,859,198	3,719	2,633	3,414	3,051
VI. West Midland	3,945,460	3,029,319	6,897	4,128	5,742	5,422
VII. North Midland	3,535,445	1,637,865	3,734	2,210	3,522	2,778
VIII. North-Western	1,998,914	4,108,184	8,883	7,158	8,949	8,561
IX. Yorkshire	3,702,384	2,894,759	6,658	4,603	5,699	5,463
X. Northern	3,547,947	1,624,213	3,425	2,752	3,423	2,962
XI. Monmthsh. & Wales	5,125,342	1,577,559	3,676	2,469	3,015	2,690

8	9	10	11	12	13	14	15	16
DIVISIONS. England and Wales.)	BIRTHS in each Quarter of 1885 ending 31st March.	30th June.	30th September.	31st December.	DEATHS in each Quarter of 1885 ending 31st March.	30th June.	30th September.	31st December.
ENGLD. & WALES....*Totals*	No. 232,015	No. 222,280	No. 218,204	No. 221,195	No. 147,911	No. 132,202	No. 114,042	No. 128,362
I. London	35,162	31,913	32,074	33,351	21,973	19,675	18,472	19,882
II. South-Eastern	20,730	19,031	19,311	19,656	12,993	11,137	9,669	11,019
III. South Midland	14,031	13,143	12,859	13,281	8,878	7,017	6,442	7,550
IV. Eastern	12,390	11,351	11,277	11,589	7,876	6,467	5,576	6,247
V. South-Western	14,204	13,606	13,294	13,184	10,612	8,926	7,007	8,331
VI. West Midland	27,109	25,814	25,320	25,392	17,257	14,406	12,073	14,704
VII. North Midland	15,133	14,731	14,138	14,540	8,523	7,697	6,729	7,498
VIII. North-Western	38,606	37,579	36,793	37,244	24,701	24,032	20,785	23,566
IX. Yorkshire	25,212	24,790	24,211	24,793	15,856	15,113	12,696	13,721
X. Northern	15,597	16,304	15,273	14,995	9,630	9,248	7,945	8,182
XI. Monmthsh. & Wales	13,841	14,018	13,654	13,170	9,612	8,484	6,648	7,662

* These are revised figures, and will be found to differ somewhat from those first published.

F.—*General Meteorological Table,*

[Abstracted from the particulars supplied to the

1885. Months.	Temperature of Air. Mean.	Air. Diff. from Average of 114 Years.	Air. Diff. from Average of 44 Years.	Evaporation. Mean.	Evaporation. Diff. from Average of 44 Years.	Dew Point. Mean.	Dew Point. Diff. from Average of 44 Years.	Air—Daily Range. Mean.	Air—Daily Range. Diff. from Average of 44 Years.	Water of the Thames.	Elastic Force of Vapour. Mean.	Elastic Force of Vapour. Diff. from Average of 44 Years.	Weight of Vapour in a Cubic Foot of Air. Mean.	Weight of Vapour in a Cubic Foot of Air. Diff. from Average of 44 Years.
	°	°	°	°	°	°	°	°	°		In.	In.	Grs.	Gr.
Jan.....	36·6	+0·1	−1·9	35·3	−1·7	33·4	−1·6	7·9	−1·7	—	·191	−·010	2·3	−0·1
Feb.....	43·9	+5·2	+4·3	42·1	+4·2	40·1	+4·7	10·8	−0·3	—	·248	+·039	2·9	+0·5
Mar. ...	40·3	−0·8	−1·4	37·4	−1·9	33·8	−2·3	16·5	+1·8	—	·194	−·024	2·3	−0·2
Means...	40·3	+1·5	+0·3	38·3	+0·2	35·8	+0·3	11·7	−0·1	—	·211	+·002	2·5	+0·1
April ...	47·7	+1·6	+0·7	44·3	+0·4	40·5	0·0	18·8	+0·4	—	·252	−·001	2·9	0·0
May.....	49·9	−2·6	−2·8	46·2	−2·7	42·2	−2·9	19·0	−1·5	—	·269	−·030	3·0	−0·4
June ...	59·5	+1·3	+0·6	54·6	+0·1	50·4	−0·3	21·7	+0·7	—	·366	−·004	4·1	−0·1
Means...	52·4	+0·1	−0·5	48·4	−0·7	44·4	−1·1	19·8	−0·1	—	·296	−·012	3·3	−0·2
July.....	63·8	+2·1	+1·7	58·0	+0·3	53·2	−0·8	24·5	+3·5	—	·406	−·012	4·5	−0·2
Aug. ...	58·5	−2·4	−3·0	54·4	−3·1	50·8	−3·2	20·0	+0·2	—	·371	−·049	4·2	−0·5
Sept. ...	55·1	−1·4	−2·0	52·5	−1·5	50·0	−1·2	17·5	−0·8	—	·391	−·019	4·0	−0·3
Means...	59·1	−0·6	−1·1	55·0	−1·4	51·3	−1·7	20·7	+1·0	—	·379	−·027	4·2	−0·3
Oct.....	46·1	−3·7	−3·9	43·9	−4·0	41·4	−4·4	12·3	−2·3	—	·261	−·049	3·1	−0 9
Nov. ...	43·3	+1·0	−0·2	42·0	+0·7	40·5	+1·1	10·3	−1·2	—	·252	+·007	2·9	+0·1
Dec. ...	38·9	−0·2	−1·0	37·5	−1·0	35·3	−1·4	8·9	−0·5	—	·206	−·013	2·5	−0·1
Means...	42·8	−1·0	−1·7	41·1	−1·4	39·1	−1·6	10·5	−1·3	—	·240	−·018	2·8	−0·3

Note.—In reading this table it will be borne in mind that the sign (−) minus signifies

The mean temperature of the air for October was 46°·1, being 3°·7 and 3°·9 below the averages of 114 years and 44 years respectively; it was 2°·8, 4°·3, and 4°·7 lower than in 1884, 1883, and 1882 respectively.

The mean temperature of the air for November was 43°·3, being 1°·0 above the average of 114 years, and 0°·2 below the average of 44 years; it was 0°·9 higher than in 1884, 0°·5 and 0°·2 lower than in 1883 and 1882 respectively.

The mean temperature of the air for December was 38°·9, being 0°·2 and 1°·0 below the averages of 114 years and 44 years respectively; it was 2°·1, 1°·6, and 1°·2 lower than in 1884, 1883, and 1882 respectively.

The mean temperature of the quarter was 42°·8, being 1°·0 and 1°·7 below the averages of 114 years and 44 years respectively.

for the Year ended 31st December, **1885.**

Registrar-General by JAMES GLAISHER, ESQ., F.R.S., &c.]

Degree of Humidity.		Reading of Barometer.		Weight of a Cubic Foot of Air.		Rain.		Daily Horizontal Movement of the Air.	Reading of Thermometer on Grass.					1885. Months.
									Number of Nights it was			Lowest Reading at Night.	Highest Reading at Night.	
Mean.	Diff. from Average of 44 Years.	Mean.	Diff. from Average of 44 Years.	Mean.	Diff. from Average of 44 Years.	Amnt.	Diff. from Average of 70 Years.		At or below 30°.	Between 30° and 40°.	Above 40°.			
		In.	In.	Grs.	Grs.	In.	In.	Miles.				°	°	
88	+ 1	29·713	− ·043	555	+ 1	1·42	−0·46	324	16	13	2	16·9	46 2	January
86	+ 1	29·543	− ·248	543	−10	2·34	+0·75	361	6	17	5	22·7	47·5	Feb.
78	− 3	29·900	+ ·151	554	+ 4	1·50	−0·03	274	24	7	0	20·5	37·4	March
83	0	29·719	− ·047	551	− 2	Sum 5·26	Sum +0·26	Mean 320	Sum 46	Sum 37	Sum 7	Lowest 16·9	Highst 47·5	Means
77	− 3	29·616	− ·133	541	− 2	2·05	+0·31	293	10	17	3	22·9	43·8	April
76	− 3	29·628	− ·164	538	− 2	2·10	+0·05	282	8	16	7	23·2	50·3	May
73	− 2	29·857	+ ·052	532	0	1·67	−0·33	271	0	14	16	30·1	54·3	June
75	− 3	29·700	− ·082	537	− 1	Sum 5·82	Sum +0·01	Mean 282	Sum 18	Sum 47	Sum 26	Lowest 22·9	Highst 54·3	Means
69	− 7	29·996	+ ·202	530	+ 2	0·50	−2·04	222	0	9	22	32·6	57·8	July
76	0	29·796	+ ·013	532	+ 4	1·32	−1·06	259	0	13	18	30·4	52·8	August
83	+ 2	29·713	− ·086	534	+ 1	3·73	+1·30	275	3	9	18	22·3	55·8	Sept.
76	− 2	29·835	+ ·043	532	+ 2	Sum 5·55	Sum −1 80	Mean 252	Sum 3	Sum 31	Sum 58	Lowest 22·3	Highst 57·8	Means
84	− 4	29·530	− ·184	541	+ 1	3·41	+0·61	327	7	22	2	22·2	41·2	October
90	+ 1	29·721	− ·021	547	− 1	2·83	+0·50	281	11	12	7	19·5	44·1	Nov.
87	− 1	30·031	+ ·241	558	+ 5	1·13	−0·86	284	15	16	0	18·8	40·0	Dec.
87	− 1	29·761	+ ·012	549	+ 2	Sum 7·37	Sum +0·25	Mean 297	Sum 33	Sum 50	Sum 9	Lowest 18·8	Highst 44·1	Means

below the average, and that the sign (+) plus signifies above the average.

The mean high day temperature of the air in October was 52°·4, being 5°·6 below the average of 44 years; in November it was 48°·1, being 0°·8 below the average of 44 years; and in December it was 42°·9, being 1°·8 below the average of 44 years.

The mean low night temperature of the air in October was 40°·1, being 3°·4 below the average of 44 years; in November it was 37°·8, being 0°·5 above the average of 44 years; and in December it was 34°·0, being 1°·2 below the average of 44 years.

The mean daily range of temperature in October was 12°·3, being 2°·3 less than the average; in November it was 10°·3, being 1°·2 less than the average; and in December it was 8°·9, being 0°·5 less than the average.

No. II.—SCOTLAND.

BIRTHS, DEATHS, AND MARRIAGES, IN THE YEAR ENDED 31ST DECEMBER, 1885.

I.—*Serial Table:—Number of* BIRTHS, DEATHS, *and* MARRIAGES *in Scotland, and their Proportion to the Population estimated to the Middle of each Year, during each Quarter of the Years* **1885-81** *inclusive.*

	1885.		1884.		1883.		1882.		1881.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
1st Quarter—										
Births	30,878	3·20	30,889	3·21	31,342	3·32	31,206	3·30	30,860	3·30
Deaths	21,936	2·27	19,115	1·99	22,012	2·33	18,265	1·93	21,284	2·27
Marriages	6,408	0·66	6,679	0·70	6,530	0·69	6,589	0·70	6,483	0·69
Mean Temperature	—		40°·0		38°·2		42°·2		33°·2	
2nd Quarter—										
Births	32,404	3·33	33,897	3·52	32,420	3·40	33,346	3·52	33,351	3·56
Deaths	18,793	1·93	18,751	1·95	20,386	2·14	18,293	1·93	17,889	1·91
Marriages	6,363	0·65	6,673	0·69	6,814	0·71	6,609	0·69	6,208	0·66
Mean Temperature	47°·6		48°·7		48°·6		48°·8		48°·5	
3rd Quarter—										
Births	31,274	3·17	32,294	3·32	30,087	3·12	30,718	3·25	31,158	3·33
Deaths	15,981	1·62	17,555	1·81	16,537	1·72	16,886	1·78	15,602	1·67
Marriages	5,679	0·58	5,729	0·59	5,890	0·62	5,957	0·63	5,787	0·62
Mean Temperature	54°·0		56°·6		55°·0		55°·5		54°·2	
4th Quarter—										
Births	31,554	3·20	31,961	3·29	30,163	3·17	30,912	3·27	30,845	3·29
Deaths	17,893	1·82	19,707	2·03	17,932	1·86	19,522	2·06	17,526	1·87
Marriages	6,806	0·69	6,980	0·72	7,621	0·79	7,419	0·78	7,470	0·80
Mean Temperature	40°·3		41°·3		42°·1		40°·2		42°·7	
Year—										
Population	3,907,736		3,866,521		3,825,744		3,785,400		3,744,685	
Births	126,110	3·23	129,041	3·34	124,462	3·25	126,182	3·33	126,214	3·37
Deaths	74,603	1·91	75,128	1·94	76,867	2·01	72,966	1·93	72,301	1·93
Marriages	25,256	0·65	26,061	0·67	26,855	0·80	26,574	0·70	25,948	0·69

II.—*Special Average Table:—Number of Births, Deaths, and Marriages in Scotland and in the Town and Country Districts for each Quarter of the Year ending 31st December,* **1885**, *and their Proportion to the Population; also the Number of Illegitimate Births, and their Proportion to the Total Births.*

Registration Groups of Districts.	Total Births.			Illegitimate Births.			Deaths.			Marriages.		
	Number	Per Cent.	Ratio. One in every	Number	Per Cent	Ratio. One in every	Number	Per Cent.	Ratio. One in every	Number	Per Cent.	Ratio. One in every
1st Quarter—												
SCOTLAND	30,878	3·20	31	2,675	8·7	11·5	21,936	2·27	44	6,408	0·66	150
Principal towns	13,023	3·48	29	1,057	8·1	12·3	9,619	2·57	39	2,948	0·79	126
Large ,,	3,471	3·38	30	233	6·7	15·0	2,454	2·39	42	789	0·76	131
Small ,,	6,461	3·15	32	563	8·7	11·5	4,568	2·23	45	1,284	0·62	161
Mainland rural	7,210	2·88	35	779	9·3	10·8	4,692	1·88	53	1,170	0·46	216
Insular ,,	713	2·23	45	43	6·0	16·6	603	1·88	53	217	0·68	147
2nd Quarter—												
SCOTLAND	32,404	3·33	30	2,688	8·3	12·0	18,793	1·93	52	6,363	0·65	155
Principal towns	13,462	3·56	28	1,063	7·9	12·7	8,173	2·16	46	2,961	0·78	127
Large ,,	3,732	3·59	28	268	7·1	14·1	1,981	1·90	53	731	0·70	144
Small ,,	6,959	3·35	30	555	7·9	12·7	3,868	1·86	54	1,214	0·58	172
Mainland rural	7,556	2·99	33	748	9·9	10·1	4,244	1·67	60	1,371	0·54	184
Insular ,,	701	2·18	46	54	7·7	13·0	527	1·63	61	86	0·26	384
3rd Quarter—												
SCOTLAND	31,274	3·17	32	2,623	11·9	8·4	15,981	1·62	62	5,679	0·58	172
Principal towns	12,625	3·31	30	1,030	8·2	12·2	7,012	1·84	54	2,848	0·74	136
Large ,,	3,501	3·33	30	235	6·7	15·0	1,716	1·63	61	689	0·65	155
Small ,,	6,883	3·28	31	544	7·9	12·7	3,321	1·58	63	1,098	0·52	192
Mainland rural	7,420	2·90	35	771	10·4	9·7	3,476	1·36	73	997	0·39	254
Insular ,,	845	2·58	39	43	5·0	20·0	456	1·39	72	47	0·14	720
4th Quarter—												
SCOTLAND	31,554	3·20	31	2,682	8·5	11·8	17,893	1·82	55	6,806	0·69	145
Principal towns	12,990	3·40	30	1,050	8·1	12·3	8,035	2·10	48	2,861	0·75	133
Large ,,	3,561	3·39	30	284	8·0	12·5	1,954	1·86	54	703	0·67	149
Small ,,	6,889	3·29	31	554	8·0	12·5	3,686	1·76	57	1,445	0·69	145
Mainland rural	7,177	2·81	35	740	10·3	9·7	3,732	1·46	68	1,621	0·63	158
Insular ,,	937	2·86	35	54	5·8	6·3	486	1·49	67	176	0·54	186

Population of Scotland.

Population.	Scotland.	Principal Towns.	Large Towns.	Small Towns.	Mainland Rural.	Insular Rural.
By Census of 1881	3,735,573	1,412,350	388,797	791,250	1,012,788	130,388
Estimated to the middle of 1885	3,907,736	1,515,535	416,373	831,379	1,014,734	129,715

III.—*Bastardy Table:—Proportion of* ILLEGITIMATE *in every Hundred* BIRTHS *in the Divisions and Counties of* SCOTLAND, *during each quarter of the Year ending* 31*st December*, **1885**; *with the Corresponding Figures for* **1884** *added for Comparison.*

Divisions and Counties.	Per Cent. for the Quarters ending 1885.				Per Cent. for the Quarters ending 1884.			
	31st March.	30th June.	30th Sept.	31st Dec.	31st March.	30th June.	30th Sept.	31st Dec.
SCOTLAND	8·7	8·3	11·9	8·5	8·5	7·7	8·1	8·1
Divisions—								
Northern	9·7	9·8	6·4	7·2	9·2	8·6	7·5	8·1
North-Western	7·1	7·4	5·6	6·2	5·7	6·3	6·8	6·0
North-Eastern	14·7	13·7	14·1	14·2	15·9	12·6	13·9	13·7
East Midland	9·5	9·2	8·5	9·2	8·7	8·1	8·8	7·8
West Midland	6·6	6·2	6·4	5·9	7·6	6·0	6·0	5·7
South-Western	6·7	6·7	7·0	6·9	6·4	6·4	6·7	6·6
South-Eastern	8·6	7·5	8·0	8·0	8·3	7·2	7·4	8·2
Southern	14·5	13·1	13·6	15·9	15·1	12·3	13·2	13·8
Counties—								
Shetland	7·3	9·2	3·5	6·3	7·1	6·2	4·2	2·9
Orkney	9·1	7·2	5·3	7·2	7·7	9·0	3·7	8·6
Caithness	12·8	13·4	9·4	9·7	13·3	10·5	11·5	11·4
Sutherland	6·4	5·4	6·2	2·9	6·6	6·6	8·1	8·4
Ross and Cromarty	5·4	5·9	4·1	3·6	5·2	5·9	5·2	3·9
Inverness	8·6	8·7	7·3	8·5	6·2	6·6	8·3	8·1
Nairn	11·3	14·5	13·1	6·2	17·1	15·0	7·4	13·4
Elgin	13·6	16·2	17·1	13·5	17·9	15·0	14·4	13·3
Banff	23·6	16·2	15·0	14·9	19·7	13·4	15·3	15·4
Aberdeen	13·5	13·1	13·9	14·4	15·0	12·1	13·9	13·8
Kincardine	13·2	10·2	10·4	13·6	14·3	10·7	11·0	10·7
Forfar	11·2	10·2	9·7	10·3	10·3	9·1	10·6	9·4
Perth	11·1	10·4	10·4	10·0	8·8	8·9	8·8	7·7
Fife	5·9	6·9	5·7	7·3	6·3	6·5	5·9	5·9
Kinross	17·1	15·2	12·5	7·9	18·6	10·2	13·9	6·4
Clackmannan	7·6	6·9	6·9	8·4	5·3	5·2	8·2	3·2
Stirling	8·3	7·4	6·4	5·4	8·7	6·6	7·1	5·3
Dumbarton	4·7	4·9	4·7	5·9	5·7	5·0	4·7	4·6
Argyll	6·0	5·5	8·0	7·2	8·9	5·8	5·8	8·0
Bute	8·0	6·1	8·8	4·5	4·8	7·2	6·9	6·6
Renfrew	6·3	5·5	6·6	5·9	5·6	5·6	5·9	5·7
Ayr	6·6	7·0	7·8	8·0	7·6	6·9	6·5	7·2
Lanark	6·8	6·9	6·9	6·8	6·4	6·4	6·9	6·8
Linlithgow	6·9	6·7	5·7	5·3	8·4	9·9	4·0	8·4
Edinburgh	8·7	7·4	8·5	7·9	7·7	6·6	7·8	7·6
Haddington	9·5	8·3	5·6	10·0	8·3	10·0	6·8	6·6
Berwick	8·5	6·3	10·9	9·2	15·2	7·3	8·8	13·6
Peebles	8·8	7·8	8·2	11·0	5·5	8·4	6·6	10·4
Selkirk	10·0	10·0	6·9	12·5	9·8	6·1	8·4	12·5
Roxburgh	10·3	9·7	12·4	13·0	8·9	9·8	9·7	12·5
Dumfries	17·4	15·9	13·3	15·1	15·5	13·0	13·2	14·4
Kirkcudbright	16·6	11·0	14·4	17·6	17·3	13·1	15·3	12·5
Wigtown	12·9	14·9	15·3	19·6	19·6	13·7	15·5	15·2

IV.—*Divisional Table:*—MARRIAGES, BIRTHS, *and* DEATHS *Registered in the Year ended 31st December*, **1885.**

(Compiled from the Registrar-General's Quarterly Returns.)

1 DIVISIONS. (Scotland)	2 AREA in Statute Acres.	3 POPULATION, 1881. (*Persons.*)	4 Marriages.	5 Births.	6 Deaths.
		No.	No.	No.	No.
SCOTLAND ..... *Totals*	19,639,377	3,735,573	25,256	126,110	74,603
I. Northern	2,261,622	123,984	605	3,030	2,094
II. North-Western.....	4,739,876	165,856	771	4,232	2,553
III. North-Eastern	2,429,594	418,250	2,527	13,708	7,058
IV. East Midland	2,790,492	602,421	3,740	18,593	10,904
V. West Midland	2,693,176	283,460	1,574	9,132	5,498
VI. South-Western.....	1,462,397	1,385,447	10,729	53,260	32,377
VII. South-Eastern	1,192,524	546,658	4,133	18,218	10,347
VIII. Southern	2,069,696	209,497	1,177	5,937	3,772

No. III.—GREAT BRITAIN AND IRELAND.

SUMMARY *of* MARRIAGES, *in the Year ended 30th September*, **1885**; *and of* BIRTHS *and* DEATHS, *in the Year ended 31st December*, **1885.**

(Compiled from the Quarterly Returns of the respective Registrars-General.)

COUNTRIES.	[000's omitted.] Area in Statute Acres.	[000's omitted.] Population, 1881. (*Persons.*)	Marriages.	Per 1,000 of Population.	Births.	Per 1,000 of Population.	Deaths.	Per 1,000 of Population.
		No.	No.	Ratio.	No.	Ratio.	No.	Ratio.
England and Wales	37,319,	25,974,	198,954	7·6	893,694	34·4	522,517	20·1
Scotland	19,639,	3,736,	25,430	6·8	126,110	33·7	74,603	19·9
Ireland	20,323,	5,175,	21,543	4·1	115,964	22·4	90,833	17·5
GREAT BRITAIN AND IRELAND	77,281,	34,885,	245,927	7·0	1,135,768	32·5	687,953	19·7

Note.—The numbers against Ireland represent the marriages, births, and deaths that the local registrars have *succeeded* in recording; but how far the registration approximates to absolute completeness, does not at present appear to be known. It will be seen that the Irish ratios of marriages, births, and deaths are much under those of England and Scotland.—ED. *S. J.*

Trade of United Kingdom, for the Years 1884-80.—*Declared Value of the Total Exports of* **Foreign** *and* **Colonial** *Produce and Manufactures to each Foreign Country and British Possession.*

Merchandise Exported to the following Foreign Countries, &c.	[000's omitted.] 1884.	1883.	1882.	1881.	1880.
I.—Foreign Countries.	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark, & Iceland, & Heligoland	4,451,	4,473,	4,674,	5,218,	5,416,
Central Europe; viz., Germany, Holland and Belgium	26,332,	25,787,	25,916,	24,702,	25,732,
Western Europe; viz., France, Portugal, (with Azores, Madeira, &c.), and Spain, (with Gibraltar and Canaries)	11,027,	13,480,	14,070,	15,102,	13,895,
Southern Europe; viz., Italy, Austrian Empire, Greece, Ionian Islands, and Malta	1,829,	1,975,	1,738,	1,426,	1,418,
Levant; viz., Turkey, Roumania,* Syria and Palestine, and Egypt	950,	914,	773,	786,	675,
Northern Africa; viz., Tripoli, Tunis, Algeria, and Morocco	92,	64,	142,	56,	62,
Western Africa	219,	262,	218,	186,	219,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Mooria Islands	—	—	—	—	—
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	72,	61,	61,	—	851,
South Sea Islands	—	—	—	—	—
China, including **Hong Kong** and Japan	970,	784,	678,	782,	1,163,
United States of America	8,312,	9,360,	7,738,	6,987,	7,098,
Mexico and Central America	96,	89,	124,	104,	80,
Foreign West Indies and Hayti	792,	839,	841,	15,	15,
South America (Northern), New Granada, Venezuela and Ecuador	75,	72,	90,	63,	58,
„ **(Pacific)**, Peru, Bolivia, Chili, and Patagonia	289,	282,	336,	302,	313,
„ **(Atlantic)**, Brazil, Uruguay, and Argentine Confed.	489,	555,	578,	355,	358,
Other countries (unenumerated)	124,	121,	104,	121,	159,
Total—Foreign Countries	56,119,	59,118,	58,081,	56,205,	57,512,
II.—British Possessions.					
British India, Ceylon, and Singapore	1,706,	1,712,	1,722,	2,031,	1,627,
Austral. Cols.—New South Wales and Victoria, So. Aus., W. Aus., Tasm., and N. Zealand	2,909,	2,623,	3,086,	2,604,	1,817,
British North America	1,034,	954,	983,	897,	807,
„ W. Indies with Btsh. Guiana & Honduras	355,	374,	327,	342,	407,
Cape and Natal	431,	443,	582,	619,	576,
Brt. W. Co. of Af., Ascension and St. Helena	77,	71,	83,	69,	101,
Mauritius	40,	74,	54,	43,	28,
Channel Islands	189,	202,	209,	204,	232,
Other possessions	82,	67,	66,	46,	247,
Total—British Possessions	6,823,	6,520,	7,112,	6,855,	5,842,
General Total £	62,942,	65,638,	65,193,	63,060,	63,354,

* Wallachia and Moldavia to 1878, and Roumania in 1879.

Trade of United Kingdom, 1885-84-83.—*Distribution of* **Exports*** *from United Kingdom, according to their Declared Real Value; and the Declared Real Value (Ex-duty) of* **Imports** *at Port of Entry, and therefore including Freight and Importer's Profit.*

[000's omitted.]

Merchandise (*excluding Gold and Silver*) Imported from, and Exported to, the following Foreign Countries, &c.	1885.		1884.		1883.	
	Imports from	*Export to*	Imports from	*Exports to*	Imports from	*Exports to*
I.—Foreign Countries:	£	£	£	£	£	£
Northern Europe; viz., Russia, Sweden, Norway, Denmark & Iceland, & Heligoland	33,466,	9,614,	32,113,	11,075,	39,058,	11,171,
Central Europe; viz., Germany, Holland, and Belgium	63,149,	33,093,	64,627,	37,409,	69,134,	36,626,
Western Europe; viz., France, Portugal (with Azores, Madeira, &c.), and Spain (with Gibraltar and Canaries)	48,115,	20,858,	50,910,	23,725,	54,039,	24,380,
Southern Europe; viz., Italy, Austrian Empire, Greece, Roumania, and Malta	10,239,	10,185,	10,543,	11,138,	11,798,	11,813,
Levant; viz., Turkey, Asiatic and European (including Cyprus), and Egypt	13,355,	9,616,	15,009,	9,285,	15,352,	10,062,
Northern Africa; viz., Tripoli, Tunis, Algeria and Morocco	1,901,	869,	1,506,	770,	1,729,	781,
Western Africa	1,247,	1,292,	1,480,	2,009,	1,739,	1,636,
Eastern Africa; with African Ports on Red Sea, Aden, Arabia, Persia, Bourbon, and Kooria Mooria Islands	451,	811,	466,	590,	999,	845,
Indian Seas, Siam, Sumatra, Java, Philippines; other Islands	4,262,	2,855,	4,758,	3,379,	5,876,	3,599,
South Sea Islands	84,	88,	130,	91,	121,	141,
China and Japan, including Hong Kong	10,047,	11,023,	11,882,	9,628,	12,058,	9,395,
United States of America	86,158,	21,977,	86,054,	24,430,	98,521,	27,383,
Mexico and Central America	1,795,	1,466,	2,000,	1,916,	1,869,	2,391,
Foreign West Indies, Hayti, &c.	1,216,	2,245,	1,323,	2,457,	1,509,	3,191,
South America (Northern), New Granada, Venezuela, and Ecuador	619,	1,126,	911,	2,141,	1,379,	2,005,
„ (Pacific), Peru, Bolivia, Chili, and Patagonia	4,559,	2,177,	4,917,	3,225,	5,985,	2,881,
„ (Atlantic) Brazil, Uruguay, and Argentine Republic	6,588,	11,412,	6,519,	13,865,	7,741,	12,844,
Whale Fisheries; Grnlnd., Davis' Straits, Southn. Whale Fishery, Falkland Islands, and French Possessions in North America	144,	26,	228,	27,	192,	34,
Total—Foreign Countries	287,395,	140,733,	295,376,	157,160,	329,099,	161,178,
II.—British Possessions:						
British India, Ceylon, and Singapore	38,755,	32,182,	41,566,	33,964,	45,835,	35,218,
Austral. Cols.—N. So. W., Victoria & Queensld.	16,018,	18,245,	18,409,	17,127,	16,925,	16,944,
„ „ So. Aus., W. Aus., Tasm., N. Zealand, & Fiji Islands	10,098,	6,903,	9,970,	6,748,	9,026,	7,267,
British North America	10,329,	7,207,	11,125,	8,648,	12,215,	8,154,
„ W. Indies with Btsh. Guiana & Honduras	4,185,	2,497,	5,213,	3,236,	5,137,	3,568,
Cape and Natal	5,134,	3,826,	5,950,	4,104,	5,868,	4,558,
Brt. W. Co. of Af., Ascension and St. Helena	880,	663,	1,087,	938,	729,	874,
Mauritius	310,	263,	357,	389,	415,	506,
Channel Islands	800,	512,	851,	613,	796,	563,
Total—British Possessions	86,509,	72,298,	94,528,	75,767,	96,946,	78,652,
General Total £	373,904,	213,031,	389,904,	232,927,	426,045,	239,830,

* *i.e.*, British and Irish produce and manufactures.

IMPORTS.—(United Kingdom.)—**For the Years 1885-84-83-82-81.**—*Declared Real Value (Ex-duty), at Port of Entry (and therefore including Freight and Importer's Profit), of Articles of Foreign and Colonial Merchandise Imported into the United Kingdom.*

[000's omitted.]

Foreign Articles Imported.		1885.	1884.	1883.	1882.	1881.
		£	£	£	£	£
Raw Matls.–*Textile*, &c.	Cotton, Raw ...	36,044,	44,114,	44,279,	46,193,	43,502,
	Wool	26,248,	28,566,	26,718,	27,207,	27,499,
	Silk*	12,631,	15,561,	14,282,	14,905,	15,066,
	Flax	3,188,	3,028,	2,877,	3,608,	3,398,
	Hemp and Jute	5,459,	5,679,	6,877,	6,501,	6,159,
	Indigo	2,133,	2,484,	2,467,	2,610,	2,346,
		85,703,	99,432,	97,500,	101,024,	97,970,
„ „	*Various.* Hides	3,863,	3,885,	3,804,	3,741,	6,355,
	Oils	2,987,	3,031,	3,461,	2,900,	3,359,
	Metals	16,287,	16,806,	13,997,	14,392,	12,448,
	Tallow	1,582,	2,097,	2,100,	2,256,	2,102,
	Timber	15,245,	15,027,	17,138,	17,168,	14,957,
		39,964,	40,846,	40,500,	40,457,	39,221,
„ „	*Agricltl.* Guano	242,	439,	722,	390,	489,
	Seeds	7,838,	7,574,	9,085,	8,608,	7,563,
		8,080,	8,013,	9,807,	8,998,	8,052,
Tropical, &c., Produce.	Tea	10,718,	10,567,	11,769,	11,363,	11,345,
	Coffee and Chich.	3,380,	3,826,	4,992,	5,288,	5,267,
	Sugar & Molasses	18,447,	19,854,	25,086,	24,976,	24,404,
	Tobacco	3,901,	2,777,	2,900,	2,563,	2,623,
	Rice	2,173,	2,683,	3,181,	3,297,	3,666,
	Fruits	6,015,	5,609,	4,217,	4,055,	4,125,
	Wines	5,125,	5,347,	5,460,	5,463,	5,660,
	Spirits	1,967,	1,890,	1,744,	1,875,	1,676,
		51,726,	52,553,	59,349,	58,880,	58,766,
Food	Grain and Meal.	52,749,	47,563,	67,040,	63,196,	60,557,
	Provisions	39,859,	41,696,	42,518,	36,808,	41,296,
		92,608,	89,259,	109,558,	100,004,	101,853,
Remainder of Enumerated Articles		55,457,	58,247,	61,719,	57,766,	47,694,
Total Enumerated Imports		333,538,	348,350,	378,433,	367,129,	353,556,
Add for Unenumerated Imports (say)		40,296,	41,424,	47,171,	44,872,	42,100,
Total Imports		373,834,	389,774,	425,604,	412,001,	395,656,

* "Silk," inclusive of manufactured silk, "not made up."

EXPORTS.—(United Kingdom.)—**For the Years 1885-84-83-82-81.**—*Declared Real Value, at Port of Shipment, of Articles of* BRITISH *and* IRISH *Produce and Manufactures Exported from the United Kingdom.*

[000's omitted.]

BRITISH PRODUCE, &c., EXPORTED.		1885.	1884.	1883.	1882.	1881.
		£	£	£	£	£
MANFRS.—*Textile.*	Cotton Manufactures..	55,113,	58,925,	62,937,	62,945,	65,923,
	,, Yarn	11,859,	13,812,	13,511,	12,867,	13,167,
	Woollen Manufactures	18,847,	20,131,	18,320,	18,789,	18,122,
	,, Yarn	4,383,	3,892,	3,267,	3,399,	3,224,
	Silk Manufactures.....	1,957,	2,173,	2,426,	2,692,	2,565,
	,, Yarn	376,	613,	707,	828,	1,009,
	Linen Manufactures	4,962,	5,178,	5,439,	5,967,	5,844,
	,, Yarn	985,	1,137,	1,059,	1,038,	1,057,
		98,482,	105,861,	107,666,	108,525,	110,911,
,, *Sewed.*	Apparel	4,171,	3,936,	3,636,	4,170,	3,710,
	Haberdy. and Mllnry.	2,308,	2,853,	3,879,	4,258,	4,190,
		6,479,	6,789,	7,515,	8,428,	7,900,
METALS, &c.	Hardware	2,849,	3,141,	3,756,	4,112,	3,859,
	Machinery	11,075,	13,051,	13,444,	11,963,	9,944,
	Iron	21,717,	24,488,	28,584,	31,579,	27,576,
	Copper and Brass.....	3,468,	4,021,	4,005,	3,782,	3,823,
	Lead and Tin	885,	891,	1,077,	1,158,	1,139,
	Coals and Culm	10,632,	10,852,	10,642,	9,561,	8,794,
		50,626,	56,444,	61,508,	62,155,	55,135,
Ceramic Manufcts.	Earthenware and Glass	2,696,	2,887,	3,280,	3,283,	3,059,
Indigenous Mnfrs. and Products.	Beer and Ale.....	1,645,	1,642,	1,816,	1,872,	1,725,
	Butter	176,	205,	212,	220,	205,
	Cheese	52,	61,	59,	65,	51,
	Candles	200,	214,	148,	135,	138,
	Salt.....	673,	613,	645,	570,	587,
	Spirits	859,	794,	789,	756,	769,
	Soda	—	—	—	—	—
		3,605,	3,529,	3,669,	3,618,	3,475,
Various Manufcts.	Books, Printed	1,143,	1,172,	1,176,	1,173,	1,101,
	Furniture	—	—	—	—	—
	Leather Manufactures	2,307,	2,299,	2,398,	2,833,	2,461,
	Soap	473,	548,	449,	458,	397,
	Plate and Watches	328,	322,	338,	352,	285,
	Stationery	854,	848,	883,	882,	796,
		5,105,	5,189,	5,244,	5,698,	4,040,
Remainder of Enumerated Articles		31,826,	34,389,	28,146,	25,844,	25,563,
Unenumerated Articles.....		14,212,	17,839,	22,802,	23,926,	22,856,
TOTAL EXPORTS.....		213,031,	232,927,	239,830,	241,477,	233,939,

SHIPPING.—(United Kingdom.)—*Account of Tonnage of Vessels Entered and Cleared with Cargoes, from and to Various Countries, during the* **Years** *ended December,* **1885-84-83.**

Countries from whence Entered and to which Cleared.	Total British and Foreign.					
	1885.		1884.		1883.	
	Entered.	Cleared.	Entered.	Cleared.	Entered.	Cleared.
FOREIGN COUNTRIES.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Russia { Northern ports	1,407,281	1,110,765	1,416,088	1,143,731	1,573,043	1,143,214
Russia { Southern „	516,941	221,232	373,421	279,034	454,222	280,952
Sweden	1,366,389	997,250	1,259,735	945,511	1,390,679	916,110
Norway	890,500	625,188	982,657	575,623	966,000	563,777
Denmark	267 468	891,771	262,250	879,792	299,924	887,885
Germany	2,015,290	2,882,245	1,917,595	2,922,140	2,109,202	2,804,169
Holland	1,639,986	1,555,616	1,583,316	1,578,225	1,479,657	1,513,252
Belgium	1,264,928	1,100,683	1,247,679	1,164,870	1,195,207	1,145,969
France	2,018,560	3,759,023	2,026,831	3,912,883	2,075,005	4,044,855
Spain	2,063,011	1,047,850	2,062,413	1,065,782	2,236,854	1,023,441
Portugal	160,284	388,678	189,006	424,429	214,350	420,811
Italy	221,028	1,792,035	205,214	1,602,221	288,891	1,633,426
Austrian territories	99,042	126,949	111,051	154,921	64,163	84,289
Greece	90,859	121,728	81,156	134,420	82,271	124,815
Roumania	270,897	82,142	267,366	109,107	272,228	111,739
Turkey	253,226	318,588	297,505	307,571	296,703	313,383
Egypt	417,963	800,428	328,386	769,819	346,073	683,530
United States of America	4,711,323	3,143,000	4,301,146	3,094,993	4,848,670	3,410,670
Mexico, Foreign West Indies, and Central America	175,729	378,292	195,319	430,458	204,196	550,922
Brazil	205,500	583,081	219,643	599,206	229,667	599,457
Peru	92,225	64,603	89,449	93,331	116,954	61,690
Chili	125,232	220,036	128,700	254,283	162,959	219,156
China	196,506	81,151	182,921	66,653	183,051	68,649
Other countries	1,074,334	1,405,899	980,123	1,452,419	844,046	1,209,101
Total, Foreign Countries	21,544,502	23,968,233	20,708,970	23,961,422	21,934,015	23,815,262
BRITISH POSSESSIONS.						
North American Colonies	1,294,134	751,165	1,232,903	668,630	1,498,577	819,431
East Indies, including Ceylon, Singapore, and Mauritius	1,444,560	2,163,557	1,343,106	2,050,206	1,580,050	2,021,590
Australia and New Zealand	641,682	997,338	634,992	903,873	489,908	925,993
West Indies	139,662	188,398	146,861	190,582	149,767	196,457
Channel Islands	310,148	232,579	326,097	238,618	353,465	235,980
Other possessions	289,772	1,286,461	304,056	1,260,331	304,536	1,358,447
Total, British Possessions	4,119,958	5,619,498	3,987,715	5,312,240	4,376,303	5,557,898
TOTAL FOREIGN COUNTRIES AND BRITISH POSSESSIONS.						
Twelve Months ended December, 1885	25,664,460	29,317,731	—	—	—	—
Twelve Months ended December, '84	—	—	24,696,685	29,273,662	—	—
Twelve Months ended December, '83	—	—	—	—	26,310,318	29,373,160

GOLD AND SILVER BULLION AND SPECIE.—(United Kingdom.) —*Declared Real Value of,* IMPORTED AND EXPORTED *for the* **Years 1885-84-83.**

[000's omitted.]

Countries.	1885.		1884.		1883.	
	Gold.	*Silver.*	Gold.	*Silver.*	Gold.	*Silver.*
Imported from—	£	£	£	£	£	£
Australia	3,737,	169,	709,	23,	2,256,	33,
S. America, Brazil, Mexico, W. Indies	2,351,	3,762,	874,	4,408,	817,	3,831,
United States	909,	2,751,	5,072,	2,629,	10,	2,803,
	6,997,	6,682,	6,655,	7,060,	3,083,	6,667,
France	1,787,	1,725,	1,946,	1,696,	1,272,	2,070,
Germany, Holland, Belg., and Sweden	1,302,	526,	1,205,	434,	1,744,	336,
Portugal, Spain, and Gibraltar	673,	150,	410,	96,	558,	61,
Malta and Egypt	202,	11,	66,	86,	78,	29,
China, with Hong Kong and Japan	1,235,	—	69,	—	199,	59,
West Coast of Africa	232,	99,	117,	69,	95,	66,
All other Countries	946,	185,	252,	160,	704,	180,
Totals Imported	13,374,	9,378,	10,720,	9,601,	7,733,	9,468,
Exported to—						
France	118,	1,491,	263,	633,	101,	189,
Germany, Holland, Belg. & Sweden	3,722,	159,	1,932,	57,	1,069,	391,
Portugal, Spain, and Gibraltar	1,226,	314,	1,573,	467,	1,452,	1,206,
	5,066,	1,964,	3,768,	1,157,	2,622,	1,786,
B. India, China, Hong Kong and Japan	424,	7,493,	1,393,	8,338,	935,	7,030,
United States	299,	6,	2,184,	8,	938,	49,
South Africa	—	18,	—	—	—	11,
S. America, Brazil, Mexico, W. Indies	1,944,	31,	1,488,	172,	1,502,	227,
All other Countries	4,198,	340,	3,180,	311,	1,094,	219,
Totals Exported	11,931,	9,852,	12,013,	9,986,	7,091,	9,322,
Excess of imports	1,443,	—	—	—	642,	146,
„ exports	—	474,	1,293,	385,	—	—

BRITISH CORN.—*Gazette Average Prices* (ENGLAND AND WALES) *Weekly for* 1885.

[This Table is communicated by the Commercial Department, Board of Trade.]

Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)			Weeks ended on Saturday.	Weekly Average. (Per Imperial Quarter.)		
	Wheat.	Barley.	Oats.		Wheat.	Barley.	Oats.
1885.	*s.* *d.*	*s.* *d.*	*s.* *d.*	1885.	*s.* *d.*	*s.* *d.*	*s.* *d.*
Jan. 3	31 11	31 4	19 6	July 4	33 3	28 –	22 7
„ 10	32 7	31 7	19 11	„ 11	33 8	28 8	22 4
„ 17	34 2	32 3	20 1	„ 18	33 11	29 11	22 1
„ 24	34 11	32 5	20 4	„ 25	33 11	29 –	21 8
„ 31	34 6	32 1	20 6				
				Aug. 1	34 1	27 –	22 6
Feb. 7	33 9	32 5	20 11	„ 8	33 6	27 11	23 6
„ 14	32 10	31 9	20 11	„ 15	33 1	24 10	21 11
„ 21	32 4	31 10	20 8	„ 22	33 5	26 2	20 11
„ 28	32 –	31 6	20 3	„ 29	33 3	28 4	20 6
March 7	31 8	31 3	20 8	Sept. 5	32 4	30 7	20 –
„ 14	31 4	31 3	20 9	„ 12	31 1	31 11	19 1
„ 21	31 11	31 2	20 8	„ 19	30 10	31 1	19 2
„ 28	32 7	31 4	20 10	„ 26	30 10	31 –	19 4
April 4	32 6	31 6	20 9	Oct. 3	30 6	31 1	19 1
„ 11	33 3	31 2	20 11	„ 10	30 7	30 11	18 8
„ 18	34 1	31 3	20 11	„ 17	30 11	30 9	18 9
„ 25	36 8	32 6	22 9	„ 24	31 6	30 7	18 9
				„ 31	31 4	30 2	19 2
May 2	37 1	31 4	22 7				
„ 9	38 1	30 4	23 2	Nov. 7	31 1	30 3	18 11
„ 16	37 5	30 8	22 10	„ 14	31 –	30 4	19 –
„ 23	35 10	28 11	22 6	„ 21	30 10	29 9	18 3
„ 30	34 11	28 8	22 9	„ 28	30 9	29 5	18 7
June 6	34 6	27 6	22 3	Dec. 5	31 –	30 1	18 10
„ 13	33 8	30 2	22 1	„ 12	30 5	29 8	18 2
„ 20	33 2	28 2	22 4	„ 19	30 5	29 3	18 1
„ 27	32 8	28 3	22 4	„ 26	30 2	29 –	18 3

BRITISH CORN.—*Gazette Average Prices* (ENGLAND AND WALES), *Summary of, for* **1885**, *with those for* **1884**, *added for Comparison.*

[This Table is communicated by the Commercial Department, Board of Trade.]

Average for	Per Imperial Quarter, 1885.						Per Imperial Quarter, 1884.					
	Wheat.		Barley.		Oats.		Wheat.		Barley.		Oats.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*	*s.*	*d.*
January	33	7	31	11	20	–	38	7	32	3	19	3
February	32	8	31	10	20	8	37	3	32	1	19	6
March	31	10	31	3	20	8	37	7	31	4	19	9
First quarter	32	9	31	8	20	5	37	9	31	10	19	7
April	34	1	31	7	21	4	37	5	31	1	19	8
May	36	8	29	11	22	9	37	9	29	7	20	8
June	33	6	28	6	22	3	37	2	27	9	20	9
Second quarter	34	10	30	–	22	2	37	6	29	6	20	9
July	33	8	28	10	22	2	37	–	27	10	23	2
August	33	5	26	10	22	–	36	11	29	–	21	10
September	31	3	31	1	19	4	33	9	32	3	19	6
Third quarter	32	10	28	9	21	2	35	11	29	8	21	6
October	30	11	30	8	18	10	32	3	31	10	19	–
November	30	11	29	11	18	8	31	5	31	10	19	3
December	30	6	29	6	18	4	31	1	31	1	19	4
Fourth quarter	30	9	30	1	18	7	31	7	31	6	19	2
THE YEAR	32	10	30	1	20	7	35	8	30	8	20	3

REVENUE OF THE UNITED KINGDOM.

Net Produce in QUARTERS *and* YEARS *ended* 31*st* DEC., **1885-84-83-82.**

[000's omitted.]

QUARTERS, ended 31st Dec.	1885.	1884.	1885.		Corresponding Quarters.	
			Less.	More.	1883.	1882.
	£	£	£	£	£	£
Customs	5,319,	5,570,	251,	—	5,477,	5,340,
Excise	7,845,	8,100,	255,	—	8,300,	8,155,
Stamps	2,800,	3,160,	360,	—	2,930,	2,850,
Taxes	20,	25,	5,	—	30,	30,
Post Office	2,140,	1,980,	—	160,	1,880,	1,830,
Telegraph Service	410,	430,	20,	—	435,	430,
	18,534,	19,265,	891,	160,	19,052,	18,635,
Property Tax	1,200,	845,	—	355,	805,	815,
	19,734,	20,110,	891,	515,	19,857,	19,450,
Crown Lands	130,	130,	—	—	130,	130,
Interest on Advances	583,	282,	—	301,	385,	385,
Miscellaneous	647,	596,	—	51,	1,051,	1,033,
Totals	21,094,	21,118,	891,	867,	21,423,	20,998,
			NET DECR. £24,			

YEARS, ended 31st Dec.	1885.	1884.	1885.		Corresponding Years.	
			Less.	More.	1883.	1882.
	£	£	£	£	£	£
Customs	20,139,	19,950,	—	189,	19,810,	19,458,
Excise	25,695,	26,527,	832,	—	27,120,	27,108,
Stamps	11,710,	11,700,	—	10,	11,871,	11,570,
Taxes	2,875,	2,860,	—	15,	2,850,	2,790,
Post Office	8,055,	7,850,	—	205,	7,450,	7,160,
Telegraph Service	1,750,	1,745,	—	5,	1,750,	1,690,
	70,224,	70,632,	832,	424,	70,851,	69,776,
Property Tax	12,635,	10,318,	—	2,317,	12,720,	9,882,
	82,859,	80,950,	832,	2,741,	83,571,	79,658,
Crown Lands	380,	380,	—	—	380,	380,
Interest on Advances	1,302,	1,013,	—	289,	1,210,	1,201,
Miscellaneous	3,037,	3,167,	130,	—	4,875,	5,106,
Totals	87,578,	85,510,	962,	3,030,	90,036,	86,345,
			NET INCR. £2,068,			

LONDON CLEARING; CIRCULATION, PRIVATE AND PROVINCIAL.

The London Clearing, and the Average Amount of Promissory Notes in Circulation in ENGLAND *and* WALES *on Saturday in each Week during the Year* **1885**; *and in* SCOTLAND *and* IRELAND, *at the Dates, as under.*

[0,000's omitted.]

	ENGLAND AND WALES.				SCOTLAND.				IRELAND.		
DATES. *Saturday.*	*London:* Cleared in each Week on the preceding *Wednesday.*	Private Banks. (Fixed Issues, 3,41).	Joint Stock Banks (Fixed Issues. 2,36).	TOTAL. (Fixed Issues, 5,77).	Average for Four Weeks ending	£5 and upwards.	Under £5.	TOTAL. (Fixed Issues, 2,68).	£5 and upwards	Under £5.	TOTAL. (Fixed Issues, 6,35).
1885.	£	£	£	£	1885.	£	£	£	£	£	£
Jan. 3.....	92,04	1,47	1,55	3,02							
„ 10.....	119,28	1,51	1,59	3,10	Jan. 10...	1,82	3,96	5,78	3,54	2,89	6,42
„ 17.....	122,03	1,51	1,60	3,11							
„ 24.....	104,91	1,49	1,58	3,07							
„ 31.....	86,78	1,46	1,54	3,00							
Feb. 7.....	133,65	1,44	1,55	2,99	Feb. 7...	1,68	3,70	5,38	3,47	2,76	6,22
„ 14.....	96,09	1,41	1,52	2,93							
„ 21.....	130,50	1,39	1,51	2,90							
„ 28.....	97,13	1,38	1,50	2,88							
Mar. 7.....	131,74	1,38	1,52	2,90	Mar. 7...	1,61	3,65	5,26	3,40	2,62	6,02
„ 14.....	99,27	1,38	1,51	2,89							
„ 21.....	123,50	1,38	1,52	2,90							
„ 28.....	89,56	1,42	1,55	2,97							
April 4.....	138,18	1,47	1,61	3,09	April 4...	1,60	3,64	5,24	3,48	2,59	6,07
„ 11.....	79,46	1,50	1,64	3,15							
„ 18.....	127,12	1,49	1,64	3,13							
„ 25.....	95,87	1,47	1,63	3,10							
May 2.....	105,26	1,46	1,64	3,10	May 2...	1,65	3,75	5,40	3,62	2,61	6,23
„ 9.....	100,53	1,47	1,66	3,13							
„ 16.....	86,93	1,48	1,66	3,15							
„ 23.....	125,25	1,46	1,64	3,10							
„ 30.....	75,65	1,44	1,60	3,04	„ 30...	2,12	4,18	6,31	3,53	2,55	6,08
June 6.....	117,45	1,41	1,56	2,97							
„ 13.....	93,29	1,39	1,56	2,95							
„ 20.....	116,14	1,38	1,53	2,91							
„ 27.....	91,08	1,40	1,52	2,92	June 27...	1,89	3,97	5,86	3,28	2,43	5,71
July 4.....	124,82	1,42	1,55	2,97							
„ 11.....	110,75	1,43	1,55	2,98							
„ 18.....	113,39	1,41	1,52	2,93							
„ 25.....	93,37	1,38	1,49	2,87	July 25...	1,75	3,95	5,70	3,35	2,45	5,80
Aug. 1.....	79,24	1,36	1,48	2,84							
„ 8.....	114,24	1,36	1,49	2,84							
„ 15.....	98,95	1,33	1,46	2,79							
„ 22.....	112,97	1,31	1,45	2,76	Aug. 22...	1,72	3,85	5,57	3,25	2,43	5,68
„ 29.....	81,45	1,30	1,44	2,74							
Sept. 5.....	117,91	1,30	1,44	2,74							
„ 12.....	85,05	1,30	1,43	2,73							
„ 19.....	103,55	1,31	1,43	3,74	Sept. 19...	1,74	3,90	5,64	3,12	2,41	5,53
„ 26.....	82,11	1,34	1,45	2,79							
Oct. 3.....	105,94	1,42	1,51	2,93							
„ 10.....	107,45	1,48	1,54	3,02							
„ 17.....	83,99	1,49	1,48	2,97	Oct. 17...	1,73	3,96	5,69	3,39	2,63	6,02
„ 24.....	111,40	1,47	1,48	2,95							
„ 31.....	85,94	1,46	1,47	2,93							
Nov. 7.....	123,99	1,46	1,49	2,95							
„ 14.....	92,77	1,45	1,47	2,92	Nov. 14...	1,92	4,14	6,06	3,66	2,90	6,56
„ 21.....	124,59	1,43	1,46	2,89							
„ 28.....	86,31	1,41	1,46	2,87							
Dec. 5.....	138,76	1,41	1,43	2,84							
„ 12.....	91,03	1,39	1,40	2,79	Dec. 12...	2,10	4,27	6,37	3,56	2,92	6,48
„ 19.....	128,54	1,38	1,40	2,78							
„ 26.....	98,80	1,38	1,42	2,80							

BANK OF ENGLAND.

Pursuant to the Act 7th and 8th Victoria, cap. 32 (1844)

[0,000's omitted.]

1	2	3	4	5	6	7
Issue Department.					Collateral Columns.	
Liabilities.		Assets.				
Notes Issued.	Dates. (Wednesdays.)	Government Debt.	Other Securities.	Gold Coin and Bullion.	Notes in Hands of Public. (Col. 1 minus col. 16.)	Minimum Rates of Discount at Bank of England.
£		£	£	£	£	Per cnt.
Mlns.	1885.	Mlns.	Mlns.	Mlns.	Mlns.	(End of 1884) 5
35.65	Jan. 7	11,02	4,73	19,90	25,19	
35.95	„ 14	11,02	4,73	20,20	24,73	
36.32	„ 21	11,02	4,73	20,57	24,34	
36,94	„ 28	11,02	4,73	21,19	24,06	
37.36	Feb. 4	11,02	4,73	21,61	24,31	
37,69	„ 11	11,02	4,73	21,94	23,86	
38,32	„ 18	11,02	4,73	22,57	23,52	
38,81	„ 25	11,02	4,73	23,06	23,42	
39,14	Mar. 4	11,02	4,73	23,39	23,84	
39,69	„ 11	11,02	4,73	23,94	23,50	1885.
40 28	„ 18	11,02	4,73	24,53	23,34	19 March ... 3½
40,54	„ 25	11,02	4,73	24,79	23,82	
40,34	April 1	11,02	4,73	24,59	24,94	
39,91	„ 8	11,02	4,73	24,16	24,89	
40,10	„ 15	11,02	4,73	24,35	24,62	
40,38	„ 22	11,02	4,73	24,63	24,44	
41,35	„ 29	11,02	4,73	25,60	24,59	
41,58	May 6	11,02	4,73	25.83	24,96	6 May 3
41,04	„ 13	11,02	4,73	25,29	24,64	13 „ ... 2½
41,15	„ 20	11,02	4,73	25,40	24,47	
41,42	„ 27	11,02	4,73	25,67	24,22	27 „ ... 2
41,61	June 3	11,02	4,73	25,86	24,93	
42,06	„ 10	11,02	4,73	26,31	25,05	
42,58	„ 17	11,02	4,73	26,83	24,77	
42,67	„ 24	11,02	4,73	26,92	24,91	
42,08	July 1	11,02	4,73	26,33	25,80	
41.76	„ 8	11,02	4,73	26,01	25,81	
42,13	„ 15	11,02	4,73	26,38	25,40	
41,62	„ 22	11,02	4,73	25,87	25,10	
41,32	„ 29	11,02	4,73	25,57	25,17	
40,52	Aug. 5	11,02	4,73	24,77	25,71	
39,89	„ 12	11,02	4,73	24,14	25,53	
40,14	„ 19	11,02	4,73	24,39	25,13	
39,55	„ 26	11,02	4,73	23,80	24,84	
39,18	Sept. 2	11,02	4,73	23,43	25,10	
37,72	„ 9	11,02	4,73	21,97	24,75	
37,61	„ 16	11,02	4,73	21,86	24,49	
37,24	„ 23	11,02	4,73	21,49	24,33	
36,79	„ 30	11,02	4,73	21,04	25,20	
36,28	Oct. 7	11,02	4,73	20,53	25,51	
36,39	„ 14	11,02	4,73	20,64	25,14	
35,66	„ 21	11,02	4,73	19,91	24,97	
35,53	„ 28	11,02	4,73	19,78	24,65	
35,40	Nov. 4	11,02	4,73	19,65	25,04	
35,45	„ 11	11,02	4,73	19,70	24,70	11 Nov..... 3
35,60	„ 18	11,02	4,73	19,85	24,38	
35,99	„ 25	11,02	4,73	20,24	24,09	
35,73	Dec. 2	11,02	4,73	19,98	24,48	
35,41	„ 9	11,02	4,73	19,66	24,15	
35,36	„ 16	11,02	4,73	19,61	24,02	16 Dec..... 4
35,24	„ 23	11,02	4,73	19,49	24,43	23 „ ... 4
35,07	„ 30	11,02	4,73	19,32	24,51	

—Weekly Return.

for Wednesday in each Week, during the Year **1885.**

[0,000's omitted.]

8	9	10	11	12	13	14	15	16	17	18
Banking Department.										
Liabilities.						Assets.				
Capital and Rest.		Deposits.		Seven Day and other Bills.	Dates. (Wednesdys.)	Securities.		Reserve.		Totals of Liabilities and Assets.
Capital.	Rest.	Public.	Private.			Government.	Other.	Notes.	Gold and Silver Coin.	
£	£	£	£	£	1885.	£	£	£	£	£
Mlns.	Mlns.	Mlns.	Mlns.	Mlns.		Mlns.	Mlns.	Mlns.	Mlns.	Mlns.
14,55	3,36	7,04	26 82	,17	Jan. 7	15,76	24,91	10,46	,82	51,95
14,55	3,38	4,85	24,66	,19	„ 14	14,60	20,90	11,22	,90	47,62
14,55	3,38	4,86	25,15	,18	„ 21	13,65	21,45	11,98	1,04	48,12
14,55	3,40	6,00	24,62	,17	„ 28	13,65	21,14	12,88	1,06	48,73
14,55	3,43	7,12	22,94	,19	Feb. 4	13.65	20,59	13,05	,93	48,22
14,55	3,44	8,36	23,54	,18	„ 11	14,05	21,13	13,83	1,05	50,06
14,55	3,45	9,73	23,29	,16	„ 18	14,05	21,21	14,80	1,13	51,19
14,55	3,45	10,78	24,40	,15	„ 25	14,05	22,75	15,39	1,16	53,35
14,55	3,75	11,35	23,79	,16	Mar. 4	14,05	23,07	15,30	1,19	53,61
14,55	3,75	11,81	25,04	,17	„ 11	14,65	23,27	16,19	1,22	55,33
14,55	3,78	12,35	24,78	,15	„ 18	14,65	22,70	16,94	1,33	55,62
14,55	3,78	11,90	25,33	,13	„ 25	14,65	23,12	16,72	1,20	55,69
14,55	3,78	11,17	25,63	,16	April 1	14,67	24,15	15,40	1,07	55,29
14,55	3,13	8,46	25,75	,15	„ 8	14,16	21,73	15,02	1,14	52,05
14,55	3,13	7,98	26,65	,18	„ 15	14,40	21,40	15,48	1,22	52,50
14,55	3,14	8,67	26,60	,17	„ 22	14,40	21,54	15,94	1,27	53,15
14,55	3,13	8,90	26,45	,16	„ 29	14,40	20,75	16,76	1,28	53,19
14,55	3,14	8,62	26,48	,17	May 6	14,50	20,69	16,62	1,16	52,97
14,55	3,15	8,31	26,21	,18	„ 13	14,10	20,75	16,40	1,15	52,40
14,55	3,15	7,82	27,33	,17	„ 20	14,10	21,02	16,68	1,23	53,03
14,55	3,15	7,52	27,93	,15	„ 27	14,10	20,83	17,20	1,17	53,30
14,55	3,10	7,13	28,08	,17	June 3	14,34	20,80	16,68	1,21	53,03
14,55	3,10	7,70	27,42	,17	„ 10	13,74	20,99	17,01	1,20	52,94
14,55	3,11	7,74	28 32	,16	„ 17	13,74	21,11	17,81	1,21	53,87
14,55	3,10	7,87	28,24	,17	„ 24	13,79	21,19	17,76	1,20	53,94
14,55	3,14	6,41	29,25	,18	July 1	13,86	22,25	16,28	1,15	53,54
14,55	3,33	6,21	32,30	,16	„ 8	17,05	22,35	15,95	1,19	56,54
14,55	3,35	4,88	34,24	,20	„ 15	17,05	22,34	16,73	1,11	57,23
14,55	3,35	5,70	33,10	,18	„ 22	17,07	22,30	16,52	1,00	56,89
14,55	3,36	5,36	32,98	,15	„ 29	17,07	22,09	16,15	1,09	56,40
14,55	3,39	4,67	32,19	,18	Aug. 5	17,57	21,54	14,81	1,07	54,99
14,55	3,40	4,27	30,16	,19	„ 12	15,89	21,28	14,36	1,04	52,57
14,55	3,41	4,21	30,59	,17	„ 19	15,56	21,25	15,01	1,11	52,93
14,55	3,42	3,65	31,08	,17	„ 26	15,96	21,20	14,71	1,01	52,88
14,55	3,74	3,20	31,03	,17	Sept. 2	16,03	21,56	14,08	1,03	52,70
14,55	3,75	4,46	28.80	,18	„ 9	15,13	22,68	12,97	,97	51,75
14,55	3,75	4,01	29,06	,17	„ 16	14,94	22,48	13,12	1,01	51,55
14,55	3,76	4,39	28,53	,17	„ 23	14,95	22,65	12,91	,89	51,40
14,55	3,75	5,71	28,00	,17	„ 30	17,22	22,51	11,59	,87	52,19
14,55	3,06	5,62	29,67	,20	Oct. 7	19,11	22,28	10,77	,93	53,09
14,55	3,07	3,75	31,22	,23	„ 14	18,54	22,13	11,25	,91	52,83
14,55	3,08	3,57	29.59	,22	„ 21	17,56	21,75	10,69	1,01	51,01
14,55	3,08	3,05	26,98	,20	„ 28	15,22	20,80	10,88	,97	47,87
14,55	3,08	3,11	25,92	,19	Nov. 4	15 12	20,38	10,36	,98	46,84
14,55	3,08	2,89	25.16	,22	„ 11	14,32	19,82	10,75	1,02	45,91
14,55	3,10	3,07	24,12	,19	„ 18	12,98	19,76	11,22	1,08	45,04
14,55	3,11	2,99	24,82	,17	„ 25	12,31	20,41	11,90	1,02	45,64
14,55	3,07	2,78	24,29	,18	Dec. 2	12,71	20,01	11,25	,92	44,89
14,55	3,08	3,22	23,25	,18	„ 9	12,56	19,48	11,26	,98	44,28
14,55	3,10	2,96	23,58	,15	„ 16	11,81	20,24	11,34	,95	44,34
14,55	3,10	3,57	23.24	,16	„ 23	11,56	21,45	10,81	,81	44,63
14,55	3,10	4,00	25,05	,12	„ 30	12,05	23,43	10,56	,79	46,83

FOREIGN EXCHANGES.—*Quotations as under,* LONDON *on Paris, Hamburg, and Calcutta;—and New York, Calcutta, and Hong Kong, on* LONDON, *for* **1885.**

1	2	3	4	5	6	7	8	9
			Calcutta.				Price per Ounce.	
DATES. (Thursdays)	London on Paris. 3 m. d.	London on Hamburg 3 m. d.	London on Calcutta.	Indian Council Bills. Minimum Price Per Rupee.	New York on London. 60 d. s.	Hong Kong on London. 4 m. d.	Gold Bars (Fine).	Standard Silver in Bars.
1885.			*s. d.*	*d.*	Per cnt.	*s. d.*	*s. d.*	*d.*
Jan. 1 ...	25·55	20·71	1 $7\frac{3}{32}$	$19\frac{3}{20}$	$4·80\frac{1}{4}$	3 $8\frac{1}{8}$	77 9	50
„ 15	25·55	20·71	1 $7\frac{5}{32}$	$19\frac{1}{8}$	$4·81\frac{3}{4}$	3 $7\frac{1}{8}$	77 9	$49\frac{3}{4}$
Feb. 5	$25·53\frac{3}{4}$	20·68	1 $7\frac{3}{32}$	$19\frac{1}{32}$	$4·83\frac{1}{4}$	3 $6\frac{7}{8}$	77 9	$49\frac{17}{32}$
„ 19	$25·57\frac{1}{2}$	20·70	1 $6\frac{3}{4}$	$18\frac{3}{4}$	$4·83\frac{3}{4}$	3 $6\frac{1}{8}$	77 9	$48\frac{13}{16}$
Mar. 5 ...	$25·58\frac{3}{4}$	20·71	1 $6\frac{51}{64}$	$18\frac{25}{32}$	$4·83\frac{1}{4}$	3 $6\frac{3}{8}$	77 9	49
„ 19	$25·57\frac{1}{2}$	20·71	1 $6\frac{15}{16}$	$18\frac{29}{32}$	$4·83\frac{1}{4}$	3 $6\frac{3}{4}$	77 9	$49\frac{3}{16}$
April 2 ...	$25·58\frac{3}{4}$	20·69	1 $6\frac{13}{16}$	$18\frac{13}{16}$	$4·84\frac{3}{4}$	3 $6\frac{1}{2}$	77 9	49
„ 16	$25·58\frac{3}{4}$	20·72	1 7	$18\frac{15}{16}$	$4·85\frac{1}{4}$	3 $6\frac{3}{4}$	77 9	$49\frac{5}{16}$
May 7	25·50	20·65	1 $7\frac{1}{4}$	$19\frac{1}{16}$	$4·86\frac{1}{4}$	3 $7\frac{1}{16}$	77 9	$49\frac{7}{8}$
„ 21 ...	$25·41\frac{1}{4}$	20·62	1 $6\frac{7}{8}$	$18\frac{13}{16}$	$4·86\frac{1}{2}$	3 $6\frac{3}{4}$	77 9	49
June 4	$25·38\frac{3}{4}$	20·57	1 $6\frac{29}{32}$	$18\frac{29}{32}$	$4·86\frac{1}{2}$	3 $6\frac{3}{4}$	77 9	$49\frac{1}{16}$
„ 18 ...	$25·36\frac{1}{4}$	20·57	1 $6\frac{27}{32}$	$18\frac{29}{32}$	$4·85\frac{1}{2}$	3 $6\frac{5}{8}$	77 9	$49\frac{3}{16}$
July 2 ...	25·40	20·55	1 $6\frac{27}{32}$	$18\frac{7}{8}$	$4·84\frac{3}{4}$	3 $6\frac{3}{4}$	77 9	$49\frac{1}{4}$
„ 16 ...	$25·38\frac{3}{4}$	20·54	1 $6\frac{25}{32}$	$18\frac{13}{16}$	4·84	3 7	77 $9\frac{1}{4}$	$49\frac{5}{16}$
Aug. 6	$25·38\frac{3}{4}$	20·56	1 $6\frac{27}{32}$	$18\frac{29}{32}$	$4·85\frac{1}{4}$	3 $7\frac{1}{4}$	77 9	$49\frac{2}{16}$
„ 20	$25·37\frac{1}{2}$	20·55	1 $6\frac{19}{32}$	$18\frac{27}{32}$	$4·84\frac{1}{4}$	3 $6\frac{7}{8}$	77 9	$48\frac{1}{2}$
Sept. 3	$25·38\frac{3}{4}$	20·53	1 $6\frac{3}{8}$	$18\frac{1}{2}$	$4·82\frac{1}{2}$	3 $6\frac{1}{2}$	77 9	$48\frac{3}{16}$
„ 17	$25·38\frac{5}{4}$	20·56	1 $6\frac{9}{32}$	18	$4·82\frac{1}{4}$	3 $6\frac{5}{8}$	77 9	$47\frac{1}{4}$
Oct. 1	$25·38\frac{3}{4}$	20·55	1 $6\frac{1}{4}$	$18\frac{5}{32}$	$4·83\frac{3}{4}$	3 6	77 $9\frac{3}{4}$	$47\frac{9}{16}$
„ 15 ...	$25·37\frac{1}{2}$	20·51	1 $6\frac{1}{8}$	$18\frac{3}{16}$	$4·83\frac{3}{4}$	3 $5\frac{3}{4}$	77 $9\frac{3}{4}$	$47\frac{1}{2}$
Nov. 5 ...	25·40	20·51	1 $6\frac{5}{32}$	$18\frac{3}{16}$	$4·83\frac{1}{4}$	3 $5\frac{5}{8}$	77 $9\frac{1}{2}$	$47\frac{3}{8}$
„ 19 ...	$25·41\frac{1}{4}$	20·54	1 $6\frac{1}{8}$	$18\frac{5}{32}$	$4·82\frac{1}{4}$	3 $5\frac{1}{4}$	77 $9\frac{1}{2}$	$47\frac{5}{16}$
Dec. 3	$25·38\frac{3}{4}$	20·51	1 $6\frac{7}{32}$	$18\frac{7}{32}$	$4·83\frac{1}{4}$	3 $4\frac{7}{8}$	77 10	$47\frac{1}{2}$
„ 17	$25·42\frac{1}{2}$	20·57	1 $5\frac{7}{8}$	18	4·84	3 $4\frac{3}{8}$	77 $9\frac{1}{2}$	$46\frac{7}{8}$

JOURNAL OF THE STATISTICAL SOCIETY,

JUNE, 1886.

"*The* Progress *of* Joint Stock Companies *with* Limited *and* "Unlimited Liability *in the* United Kingdom, *during the* "Fifteen Years 1869-84." (*In continuation of a* Paper *read before the* Society *in January*, 1870.)

By Professor Leone Levi, LL.D., F.S.A., *&c.*

[Read before the Statistical Society, 20th April, 1886. The President, Sir Rawson W. Rawson, K.C.M.G., C.B., in the Chair.]

CONTENTS :

	PAGE
I.—Extent and Use of Public Companies	241
II.—Recent Legislation on Joint Stock Companies	242
III.—British and Foreign Laws on Companies compared	243
IV.—Number and Capital of Joint Stock Companies Registered	244
V.—Relation of Joint Stock Companies to Trade	246
VI.—Classification of Joint Stock Companies	247
VII.—Public and Private Companies	248
VIII.—Co-operative Companies	248
IX.—Dividends of Joint Stock Companies	249
X.—Centralisation of Capital and Rate of Interest	252
XI.—Incomes of Public Companies	253
XII.—Reforms in the Law on Joint Stock Companies	255
XIII.—Relation of Companies to the Depression of Trade	256
Appendix	258

I.—*Extent and Use of Public Companies.*

In January, 1870,* I had the honour of reading before the Society a paper on Joint Stock Companies, exhibiting the operation of the different Acts for their incorporation and registration, as well as for the introduction of limited liability, from 1856 to 1868. The battle of limited liability has long ago ended by the full admission of the principle for all kinds of business, including insurance and banking. And now after full twenty years of the working of the Act of 1862, which left it entirely optional with the companies to be formed on the principle of limited or unlimited liability, we have abundance of material for judging of the working of that

* *Journal of the Statistical Society*, vol. xxxiii, p. 1.

measure, and it is the business of the statistician to collate and present the same for observation and study. In truth, joint stock companies have become an economic factor of great moment in the history of trade and finance, and with good reason. Working on a large scale is in great favour in all descriptions of business, whether of production or distribution, and the spirit of association is very active in our time. Never probably richer in resources, we nevertheless feel more than ever the need and advantage of working together. Conscious of weakness in ourselves, we seek for strength in co-operation, society, and company with others. And so we agree to unite together as partners, sharers, and partakers in any adventure or business, and to put skill and capital together in the prosecution of common adventures.

II.—*Recent Legislation on Joint Stock Companies.*

Besides the Act of 1862* already referred to, other Acts are in force which modify several of its provisions. Thus the Act of 1867† permitted the constitution of limited liability companies, with directors having an unlimited liability; allowed companies to reduce their capital; and more particularly in order to secure shareholders from fraud, provided that any prospectus not specifying any contract made on behalf of the company shall be deemed fraudulent on the part of the promoters. So, every prospectus or notice must contain the names of the vendors of any business to be sold, the dates, and the names of the parties to whom it is sold, as well as the material contents of every contract made before the issue of such prospectus or notice by such company or by any promoter, where such contract is to be carried into effect out of the funds or capital of the company to be subscribed under such prospectus, or is for the benefit of such promoter. It is only just and proper, I think, that the prospectus which is to form the basis of the contract with every shareholder should contain no statement of facts which the promoters do not actually know to be correct, should disclose the whole prospect of the enterprise, and should contain no material concealment or misstatement. The Act of 1879,‡ passed in consequence of the bankruptcy of the City of Glasgow Bank, which frightened all shareholders in joint stock banking companies with unlimited liability, permitted any unlimited company to be re-registered as a limited company, by the passing of a special resolution to that effect, and increasing the nominal amount of its capital, provided that no part of such increased capital shall be capable of being called up, except in the event of, and for the purpose of the company being wound up. And by the Act of 1880,§

* 25 and 26 Vict., cap. 89.
† 30 and 31 Vict., cap. 131.
‡ 42 and 43 Vict., cap. 76.
§ 43 Vict., cap. 19.

power was given to the Registrar of joint stock companies to strike the names of defunct companies off the register, when the Registrar has reasonable cause to believe that the company is not carrying on business, or is not in operation, or when no answer has been received after a reasonable time to inquiries for returns according to the Act.

III.—*British and Foreign Laws on Companies compared.*

The laws of the United Kingdom seem to provide less security against the perpetration of fraud in the formation of joint stock companies than the laws of France, Italy, or Germany. Here any seven persons may by subscribing a memorandum of association, containing certain preliminary facts, and by each subscriber stating in the same memorandum the number of shares he proposes to take, which must not be less than one share, be it for 1*s.* or for 1,000*l.*, can form themselves into a company with limited or unlimited liability, have it registered, and advertise the same as for any amount of nominal capital, however small the amount really at the time subscribed. The registration office where such memorandum must be registered, being only the recipient of such particulars as the promoters or members of such companies are pleased to bring before them, the Registrar has no power to verify the facts proposed to be registered. By the French law on partnership *en commandite* by shares of 1867, the capital of such companies cannot be divided into shares of less than 4*l.* (100 frs.) each where the capital does not exceed 8,000*l.* (200,000 frs.), nor of less than 20*l.* (500 frs.) where the capital exceeds that amount. The partnership, moreover, is not held definitely constituted till after the entire capital has been subscribed, and one-fourth at least on each share has been paid up, the subscription and payment being proved by a declaration signed by the manager in a notarial act, while shares or coupons are not negotiable till the fourth of the amount has actually been paid up. And any company constituted at variance with these conditions is regarded as null and void, though such nullity affects only the interested parties, and cannot be pleaded by them against third persons. (See the leading principles of this law in the Appendix C.) The Italian law likewise prescribes that no company is to be held as constituted till the whole capital has been subscribed, and three-tenths of the capital has been paid up. In Germany a special permission by the Government is necessary for a *société en commandite* by shares. The shares cannot be for less than 200 thalers, and before the company is registered the entire amount must have been subscribed. The French law recognises four kinds of societies, viz., *sociétés en nom collectif*, in which the social obligations are guaranteed by the unlimited responsibility of

all the partners, in all respects similar to our ordinary partnerships. *Sociétés en commandite simple*, and "*par actions*," where the social obligations are guaranteed by the unlimited liability of one or more of the partners *commandités*, and by the limited responsibility of the *commanditaires*. And *sociétés anonymes*, in which the social obligations are guaranteed only by the capital of the company, each partner being only bound for the amount of his shares, corresponding to our own limited liability companies. To my mind the *sociétés en commandite par actions* offer better security for management than the *sociétés anonymes* or our own limited liability companies. It is evident, however, that the principle of combining unlimited liability for the directors and limited liability for shareholders, permitted by the Act of 1867, has not found favour in the United Kingdom, scarcely any companies having taken advantage of the same. The reason alleged for this is that were an unlimited responsibility laid on the directors, fewer persons might be found ready to assume that position. But what might be lost in some cases in the wealth of some directors, would be doubtless gained in an increasing caution and prudence in the management of the companies. It has been suggested that the power of joint stock companies to borrow on debentures or on notes should be curtailed. But to limit their authority to borrow is to restrict and paralyse their power of doing business. In railway enterprise, where the amount of capital needs not be enlarged beyond the amount required for any specific operation, such power of borrowing may be limited. Not so in ordinary trading, which is capable of unlimited expansion. It has been likewise proposed that no application for the allotment of shares shall be binding on the applicant unless the capital *bonâ fide* subscribed at the time amounts to at least two-thirds of the amount of the capital offered in the prospectus. This suggestion is worthy of consideration, although a proportion of two-thirds seems too large. I do not think that an increase of the registration fees would be advantageous. It would be a gratuitous hindrance to the formation of joint stock companies, without affording any better guarantee against fraud or mismanagement.

IV.—*Number and Capital of Joint Stock Companies Registered.*

From 1862 to 1884 inclusive there have been registered or re-registered in the United Kingdom 23,140 joint stock companies, with a nominal capital of 2,710 millions (see Appendix A). From a return, however, laid before the House of Commons in 1885, it appears that there were then in existence only 9,320 companies, with capital paid up, including amounts considered as paid on vendors' shares, of 494,910,000*l.*, the proportion left being only 40·27 per cent. of the total number of companies with a capital

paid up amounting only to 18·26 per cent. of the nominal sum proposed. An examination of any annual returns of joint stock companies laid before parliament shows that of the companies registered within the year only about two-thirds were in existence, and that of the remainder supposed to be still in operation, no information was received, or were known to be dissolved, winding up, or already wound up. There are in fact in those returns many instances of companies which scarcely deserve to be held as having been founded with any sober expectation of success, as the following :—

Date.	Name.	Business.	Nominal Capital.	Number of Shares taken.	Amount of Calls Received.
			£		£
9 Dec., 1869	Common Fund....	Dealing in metals and foreign securities	100,000,000	20	—
26 Mar., '82	L'Association	Carrying on every kind of business, trade, or profession of any description	12,000,000	20	140
19 Dec., '83	L'Association Universelle	Carrying on every description of business	10,000,000	1,800	Nil
28 July, '84	Indo-European Bombay Railway	Constructing railways	12,000,000	20	—

Companies like these must evidently be kept out of our reckoning if we are to come to any sound conclusions respecting the working of joint stock companies as a whole. Nevertheless it is a singular fact that from 1862 to 1884 as many as 13,820 companies, with a nominal capital of 2,215 millions, have disappeared from the register. How much real capital has been spent or wasted by abortive companies there is no mode of ascertaining. Yet some estimate may be made of the same as follows. In small companies, the proportion of capital paid up is about 15 per cent. But in large companies, and especially those that were abandoned or never started, the amount paid up was undoubtedly much less. A proportion of 5 per cent. is as much as can be taken to have been actually paid on the whole nominal capital. Assuming that proportion, the total amount obtained would be about 110 millions, and if the half may be supposed to have been returned, the actual loss would be 55 millions in the twenty years, that amount probably representing not all waste, but a sum in great part at least diverted from productive employment, and passed into the hands of persons who spent it unproductively in the concoction of abortive projects.

Recent returns of joint stock companies exhibit a great increase in the number and capital of the companies registered since 1880, but the increase has mainly arisen from the re-registration of banking and other companies under the Act of 1879. Under that

Act there were registered up to 1884 69 companies, with a nominal capital of 146 millions, and calls were received on them amounting to 21,900,000*l.*, or in the proportion of 15 per cent. Of the 23,140 companies registered from 1862 to 1884, as many as 22,617 were limited, and only 523 unlimited, companies, so completely has the principle of limitation superseded the former one of unlimited responsibility.

The quinquennial average number and capital of joint stock companies from 1863 to 1884 were as follows:—

Years.	Number of Companies.	Total Nominal Capital.	Total Amount of Imports and Exports.	Proportion of Trade to Companies and Capital £1,000,000.		Minimum Rate per Cent. of Discount Charged by the Bank of England.
				Trade of Companies.	£100,000 Capital.	
		£	£			
1863–67....	812	130,181,000	491,695,000	1·65	3·77	$5\frac{1}{4}$
'68–72....	693	83,724,000	577,243,000	1·20	4·35	$3\frac{1}{2}$
'73–77....	1,140	92,031,000	656,554,000	1·73	6·89	$3\frac{3}{4}$
'78–82....	1,287	153,469,000	667,491,000	1·93	7·14	$3\frac{1}{2}$
'83	1,266	167,680,000	732,329,000	2·41	4·35	$3\frac{9}{16}$
'84	1,541	138,401,400	685,786,000	2·24	4·79	$2\frac{19}{20}$

V.—*Relation of Joint Stock Companies to Trade.*

There is no direct relation between the number and capital of joint stock companies and the total amount of trade, for in many cases the same amount of business is done by a company which was previously done by private individuals. Many companies are moreover formed to promote inventions for the benefit and convenience of the people at home, having nothing to do with trade, and many more are for financial and banking operations, not necessarily involving imports or exports. Yet, on the other hand, the large number of companies formed for banking and financial operations in the colonies and foreign countries, the larger amount of capital which the companies have been the means of bringing into trade, and the greater facilities for credit which they provide, have a material influence both on the home and foreign trade of the country. The proportion of the total amount of trade to the number and capital of companies shows that whilst the amount of trade went on increasing from 1863 to 1866, the increase in joint stock companies took place only in 1864 and 1865, the excitement in those years being for credit and financial companies, which produced the crisis of 1866. The following period, from 1868 to 1872, exhibits a still further increase of trade, whilst the number and capital of companies declined; the exception in the capital of companies in 1869, arising from the mushroom company for

100 millions. In 1872 and 1873 there was a large increase in both companies and trade; but from 1875 to 1880, while the amount of trade continued high, the amount of capital of companies diminished, a large number of companies being for objects of a limited character, and requiring but small amounts of capital. From 1881 to 1885 the amount of trade somewhat declined, but the number and capital of companies have increased, the same being largely due, as already stated, to the re-registration of banking companies under the Act of 1879.

In France all partnerships and companies are registered. Exclusive of the *sociétés en nom collectif*, in 1883 there were registered in all 1,033 *sociétés en commandite* and *sociétés anonymes*. The total amount of imports and exports of France in that year being 417 millions, the proportion of companies to trade was 2·47 companies per 1 million £ trade. In the same year, in the United Kingdom, as above indicated, the proportion was 2·41 companies per 1 million trade. No account is available of the relative amount of capital of companies in France.

VI.—*Classification of Joint Stock Companies.*

A complete classification of the joint stock companies would be very useful, but is unfortunately not available.* Of the 23,140 companies registered, with a total nominal capital of 2,710 millions, 1,263 companies, with a total nominal capital of 1,707 millions, were companies registered with a capital of 500,000*l.* and upwards each. And of these, 269 companies, with a capital of 420 millions, were for banking; 127 companies, with a capital of 138 millions, were for insurance; 95 companies, with a nominal capital of 102 millions, were for land, agricultural improvements, house investments, &c.; 69 companies, with a capital of 85 millions, were for railways; 68 companies, with a capital of 72 millions, were for steam ships; and 27 companies, with a capital of 3,300,000*l.*, were for telegraphs. What proportion of these companies have perished or remained in existence as the survival of the fittest we do not know. It is greatly to be regretted that the returns on joint stock companies do not classify them in any shape whatever; nor does the column relating to their being in operation or wound up, tell us the dates to which the information refers.

* In my paper in 1870 I was enabled, by the kindness of Mr. Samuel Hayman, of the Registrar of Joint Stock Companies' office, to divide the companies into twenty-two classes, and to give under each class the number registered, abandoned, or wound up. I regret that I have not been able to obtain such particulars on this occasion from the officers at the Inland Revenue. A question was put on the subject to the Registrar by one of the Royal Commissioners on the Depression of Trade and Industry, but though the usefulness of such classification was admitted no such return was supplied.

VII.—*Public and Private Companies.*

Though the companies registered with a large capital more conspicuously represent the financial and commercial operations undertaken from time to time, it will be observed that the number of such companies bear but a small proportion to the entire number registered. Taking two thousand companies indiscriminately from those registered in 1881 and 1885, it is found that little more than 2 per cent. had a capital of 1,000,000*l.* and upwards; that 18 per cent. had a capital of 100,000*l.* and under 1,000,000*l.*; that 36 per cent. had a capital of 20,000*l.* and under 100,000*l.*; that 13 per cent. had a capital of 10,000*l.* and under 20,000*l.*; and that 31 per cent. had a capital of under 10,000*l.*; some having a capital of only a few hundred pounds. Many of the joint stock companies recently registered are but small concerns, formed to take over the business of private firms, or to establish clubs, hotels, boarding establishments, or public baths, or to manage steamships, or to carry on a great variety of industries, objects which might in many cases be furthered much more economically and safely by private individuals. Whilst from the terms offered in the advertisements as to purchase money and other conditions it is evident that in many cases the amount demanded or obtained is far in excess of their real worth. There is indeed reason to believe that the creation of such companies was never contemplated by the Joint Stock Companies Acts, and it is much to be desired that some check were placed to their being formed under the same. Nor was it intended that private companies, to be carried on without appealing to the public for capital or by the simple conversion of a business into a new form should be registered under such Acts. The advantages of such conversions are limited liability, greater borrowing facilities, the limited agency of the directors, instead of the almost unlimited power of partners, and a quasi incorporation. But what is this but an evasion of the Law of Partnership. Limited liability is applicable to small as well as to large undertakings, but the limitation of responsibility in such cases should never be extended to the managing partners.

VIII.—*Co-operative Companies.*

Co-operative companies, whether for production or distribution, are not included in the returns of joint stock companies, the one differing from the other in the fact, that whereas joint stock companies divide their profits by payments on the shares, co-operative societies divide their profits in most cases by lowering prices. But co-operative companies under the name of industrial and provident societies have made great progress in the United Kingdom and in other countries. And they exercise considerable influence on trade and commerce by dividing among many

the profits otherwise earned by the few, by affecting in many cases the very existence of tradesmen, by enabling their members to purchase goods and provisions direct from the producers and importers, and thus lowering prices and reducing the cost of living. From the paper read last year by Mr. Brabrook on the relation of the State to thrift, it will be seen that the number of members of such societies rose from 340,930 in 1873, to 576,477 in 1883; that the amount of share capital, which in 1873 was 3,334,104*l.*, in 1883 was 6,871,590*l.*, and that their sale of goods increased from 13,651,127*l.* in 1873, to 23,583,503*l.* in 1883. Whatever sympathy may be felt with tradesmen injured by the action of such societies, I cannot but regard their object as perfectly legitimate and useful, and their custom of exacting cash payments, instead of giving credit, as of the greatest benefit. Co-operative societies for production have not had the same success as co-operative societies for distribution.

IX.—*Dividends of Joint Stock Companies.*

But how are those joint stock companies which eventually succeed faring in prosperity? Of the working of some we have evidence in their rates of dividends as recorded in the Investors' Guide of the "Economist," in Burdett's "Official Intelligencer," and in the "Monthly Investment List," published by Messrs. Borthwick, Wark, &c., stockbrokers, in Copthall Court. Taking the annual supplement to that list, we have the following facts:—

Rate of Dividends Paid per Cent. per Annum for Half-Years during

	1872.		1876.		1880.		1884.		1885.
	First.	Second.	First.	Second	First.	Second.	First.	Second.	First.
Banks—									
London and County	20	20	16	16	20	20	22	20	20
„ Joint Stock	20	25	15	17	15	17	15	13⅓	12½
„ and Westminster	20	20	14	14	16	18	16	16	16
Union	20	20	15	15	15	15	15	12½	12½
Railways—									
London and N. Western	7	8½	6	7¼	6¾	8	6	7½	6
„ S. „	4¾	6½	4¾	6½	4¾	7¼	4¼	6¾	3¼
Great Western	5½	6½	3¾	4¼	5¼	5	5	7	4½
„ Northern	6	8¼	4¼	6¾	4	6¼	3¼	6	3
Midland	7	7½	5	5¾	6	6¼	5	5¾	4¾
Metropolitan	1 5/10	2 0/0	4	4¼	5	5	5	5	4
National Discount	10⅝	7¾	10	10	13	13	13	12	12
International Financial	5	5	nil	nil	2/–	3/3	2/6	4/6	4/6
Royal Mail	95/–	115/–	20/–	20/–	35/–	30/–	50/–	20/–	—
Peninsular and Oriental	3	8	3	4	4	6	5	9	4/6
City Offices	3/–	5/–	6/–	6/–	5/–	4/6	5/6	5/–	5/–
Fore Street Warehousing	12/3	21/–	13½	17/6	8/6	7/–	7/–	7/–	7/–
Reuter Telegraph	5	15	5 per	annum	10 per	annum	5	5	5
London Tramway	6	8½	nil	3	nil	2½	6¾	10	6¾
„ Gen. Omnibus Co.	8	10	10	12	12½	12½	12½	12½	12½

It will be seen that while in many cases the dividends were higher in 1884 than in 1872, in most cases the rates were lower in the second period than in the first. Still sounder results of the profitableness of joint stock companies may however be arrived at if we take a larger number of facts, even for fewer years, from the same source of Messrs. Wark's list. The following are the dividends paid in two periods, in 1880 and 1884, by all the companies there quoted, exclusive of those where the modes of declaring the dividends were not uniform at both times, and classified under different investments, as follows :—

Classes of Companies.	Number of Companies.	Capital Represented. [000's omitted.]	1880.		1884.		Increase or Decrease.	
			First Dividend.	Second Dividend.	First Dividend.	Second Dividend.	First Dividend.	Second Dividend.
		£						
British railways	30	680,000,	4·36	5·32	3·82	5·19	−12·38	− 2·25
Indian ,, ...	5	125,000,	5·00	5·00	5·00	5·00	....	....
Colonial ,, ...	4	45,000,	2·00	3·25	1·25	nil	−37·50	....
Foreign ,, ...	15	37,000,	4·75	4·83	4·76	3·96	+ 0·21	− 18·01
American ,, ...	9	89,000,	2·88	3·11	5·22	3·11	−81·25	....
Banks	39	61,000,	10·25	10·20	10·44	10·07	+ 1·85	− 1·27
Telegraphs	5	15,000,	8·20	8·10	7·40	4·00	− 9·75	− 50·61
Financial.....	11	3,000,	10·21	11·40	12·00	10·00	+17·53	− 12·27
Gas	17	19,000,	8·97	9·37	9·73	10·98	+ 8·47	+ 17·18
Shipping.....	12	9,000,	4·75	5·16	1·54	2·25	−17·56	− 56·39
Insurance	8	10,000,	12·87	18·31	12·65	17·00	+ 1·70	− 7·15
Land	7	5,000,	7·00	6·40	7·41	9·00	+ 5·85	+ 40·62
Electric light	4	300,	3·11	3·11	nil	nil	....	....
Telephone	3	400,	....	5·00	3·66	4·00	....	− 20·00
Tea	3	1,000,	7·00	3·75	5·83	8·50	−16·71	+127·20
Tramways	17	4,000,	4·17	4·90	5·33	6·55	+27·88	+ 33·67
Waterworks	6	7,000,	7·33	7·33	8·12	8·23	+10·77	+ 12·27
Commercial	21	9,000,	5·50	5·90	5·78	6·83	+ 3·63	+ 15·76
			Average	Average	Average	Average		
	216	1,119,000,	6·70	7·25	6·78	7·11	+ 1·19	− 1·98

It thus appears that in the case of 216 companies, of the most varied character, representing many important enterprises, the annual percentage of dividends amounted on an average to about 6·97 per cent. in 1880, and 6·94 per cent. in 1884; and that, notwithstanding the great depression of trade, the average rate of profits in 1884 was only a small percentage less than in 1880. But the capital represented in these companies is 1,119,000,000*l.*, and calculating the annual average interest upon the capital, we have an average return of 5·15 per cent. in 1880 and 4·94 per cent. in 1884 ; the towering amount invested in British and Indian railways greatly modifying the general average.

[000's omitted in capital and profits columns].

	Capital.	Annual Average Dividends.		Total Amount of Profits.	
		1880.	1884.	1880.	1884.
	£			£	£
British railways	680,000,	4·84	4·50	32,910,	30,600,
Indian ,, ...	125,000,	5·00	5·00	6,250,	6,250,
Colonial ,, ...	45,000,	2·62	0·62	1,200,	280,
Foreign ,, ...	37,000,	4·79	4·36	1,800,	1,600,
American ,, ...	89,000,	2·99	4·16	2,700,	3,700,
Banks	61,000,	10·22	10·25	6,200,	6,250,
Telegraph	15,000,	8·15	5·70	1,200,	850,
Financial	3,000,	10·82	11·00	300,	300,
Gas	19,000,	9·17	10·35	1,700,	1,900,
Shipping	9,000,	4·95	1·89	440,	175,
Insurance	10,000,	15·59	14·82	1,600,	1,500,
Land	5,000,	6·70	8·20	300,	400,
Electric light	300,	3·11	—	—	—
Telephone	400,	2·50	3·83	100,	150,
Tea, &c.....	1,000,	5·37	7·16	54,	70,
Tramway	4,000,	4·53	5·94	160,	200,
Waterworks	7,000,	7·33	8·17	500,	600,
Commercial	9,000,	5·70	6·30	500,	560,
	1,119,000,	Average 5·15	per cent. 4·94	57,700,	55,380,

The largest dividends, it will be seen, were made by insurance companies; and next by banking, gas, and water companies. Only two classes of companies, represented, however, by few instances, show no dividends, viz., colonial railways and electric light companies. Very different might be the result of the dividends if all the companies registered were taken indiscriminately. So far it does seem that once a company succeeds in establishing itself, the chances of a fair dividend may be safely calculated upon. But we have a better mode of estimating the rate of profits realised by joint stock companies as a whole. The paid up capital of the companies in existence was stated to be in April, 1885, 495 millions. The profits of companies assessed to income tax for the year ended April, 1884, was 33,935 millions, being at the rate of 6·85 per cent. In 1877 the amount invested in joint stock companies was 307 million £, and the amount of profits assessed was 27 million £, giving a proportion of 8·78 per cent. Again, we have 800 million £ invested in railways, assessed for 33 million £ profits, giving an average of 4·12 per cent. Uniting the two, we have a capital of 1,296 millions, returning an annual dividend of 5·17 per cent., as follows:—

	Capital.	Profits Assessed to Income Tax.	Proportion per Cent.
	£	£	
1885. Paid up in joint stock companies	495,000,000	34,000,000	6·85
1884. Paid up in railways	801,000,000	33,000,000	4·12*
	1,296,000,000	67,000,000	5·17

* The net receipts given by the railway returns in proportion to total paid up capital was given at 4·16 per cent. in 1884, so differing slightly from the proportion between the capital invested and the amount assessed to income tax.

And that may be taken as the average profits of trade through joint stock companies at this moment. The profits of trade generally may be assumed to average 6 to 7 per cent., the profits gained by companies are somewhat smaller. There is great difference however between British railway companies, where the capital is solid and intact, and other companies whose capital is exposed to considerable risks.

X.—*Centralisation of Capital and Rate of Interest.*

One of the most important results of joint stock banking companies has been the very large increase of banking deposits. The "Journal of the Institute of Bankers,"* quoting from a work from Mr. Crump, shows that the total amount of current and deposit accounts of the London joint stock banks, including the banks in England, India, and Colonial banks, and Scotch bankers having London establishments, and the Discount establishments, which in December, 1860, amounted to 48,500,000*l.*, rose in December, 1870, to 91,640,000*l.*, and in December, 1880, to 128,440,000*l.* And the amount of deposits of the joint stock banks, whose accounts are summarised in the same journal of February and March, 1886, show that the total amount so held in December, 1885, was upwards of 300 millions. Doubtless the large increase of banking and banking facilities all over the world has produced a greater centralisation of capital everywhere, capable of being employed in increasing the productive power of all countries. And coincident with the large increase of available capital, there has also been a steady diminution of the value of money, as indicated in the minimum rate per cent. of discount charged by the Bank of England. From 1863 to 1867 the average rate was $5\frac{1}{4}$ per cent. From 1878 to 1882 the average rate was $3\frac{1}{3}$ per cent. The supply of capital has, in truth, of late years been larger than the demand, for owing partly to the

* Vol. iv, p. 269.

absence of any new important field for investments, the principal railways and great public works being for the present completed, and also to the want of confidence produced by the state of foreign politics and social questions at home, bankers have had difficulty in employing their large deposits, and consequently the rate of interest has fallen. We must not forget that the rate of interest is greatly governed by the rate of profits. As M. Leon Fauchét said in the "Dictionnaire de l'Économie Politique," when industrial investments realise 12 to 15 per cent., it is a mere pretence to object to the payment of 4 or 5 per cent. Trade in money would cease if it were not placed on conditions analogous to those of other industries. When, on the contrary, the capital employed in agriculture or manufacture produces a return of only 5 to 6 per cent., a moderate rate of interest, say $3\frac{1}{2}$ to 4 per cent., will suffice to the capitalist.

But a large portion of the capital which the joint stock companies have helped to gather has been invested as fixed capital in land and mortgages at home, or has actually been exported for like purposes to the colonies and abroad. If the companies have greatly assisted the economy of capital, they have also promoted its distribution over the face of the globe. Whilst at home the tendency for some time has been to a decline of the value and cost of production of all commodities, and by the competition of capital to reach a minimum rate of profits, the emigration of capital has acted to some extent at least as a counterpoise in checking the downward tendency. As John Stuart Mill said, "the emigration "of capital has a two-fold operation. In the first place, it does "what a fire or an inundation, or a commercial crisis would have "done, it carries off a part of the increase of capital, from which the "reduction of profits proceeds. Secondly, the capital so carried "off is not lost, but is chiefly employed either in founding colonies, "which become large exporters of cheap agricultural produce, or "in extending and perhaps improving the agriculture of older "communities . . . . The exportation of capital is an agent of "great efficacy in extending the field of employment for that which "remains; and it may be said truly that, up to a certain point, "the more capital we send away, the more we shall possess and "be able to retain at home."

XI.—*Incomes of Public Companies.*

The returns of joint stock companies registered give by no means a complete view of the extent in which joint stock enterprise is carried on in this country. Thus among banking companies it excludes the Bank of England, Bank of Scotland, and Bank of Ireland. Companies for British railways are not included, nor are

friendly and building societies. A more vivid view of the position acquired by joint stock companies will be formed by taking the gross amount of profits assessed to income tax on public companies since 1862. The amount of income so assessed is not levied in all cases on public companies, but is assessed in respect of various concerns, or particular descriptions of incomes, chargeable under separate and distinct rules of the Income Tax Act. The bulk however of such income is charged on public companies, and is so classed in the report of the Inland Revenue Commissioners (see Appendix D), as follows:—

Year ended 5th April.	Quarries.	Mines.	Ironworks.	Gasworks.	Canals.	Fishing.	Salt Springs.	Public Companies not previous included.
	£	£	£	£	£	£	£	£
1862	440,018	4,436,000	1,079,589	1,317,633	961,165	87,439	—	—
'66	605,657	5,080,304	1,840,650	1,891,568	962,206	114,350	—	—
'70	696,617	5,544,099	2,018,564	2,157,274	746,591	173,610	—	16,619,877
'74	814,204	10,545,832	7,218,053	2,665,853	755,039	182,413	—	23,452,906
'78	1,341,068	12,899,691	2,315,077	3,923,150	2,993,373	412,816	122,604	23,452,937
'82	922,808	6,728,243	2,904,621	4,640,363	3,392,683	539,855	154,777	27,153,682
'84	913,888	7,064,806	3,010,725	4,879,470	3,365,126	572,185	138,341	33,935,370

Year ended 5th April.	Waterworks.	Markets, Tolls, &c.	Railways in the United Kingdom.	Railways out of the United Kingdom.	Total Public Companies.	Total Amount Assessed.	Companies to Total Income per cent.
	£	£	£	£	£	£	
1862	—	—	14,814,149	—	—	351,745,241	—
'66	—	—	18,536,939	—	—	413,105,180	—
'70	—	—	20,718,421	—	48,675,053	444,914,000	10·94
'74 ...	—	—	26,035,351	—	71,669,682	549,422,760	13·04
'78	2,166,606	593 715	28,290,611	2,200,965	80,732,582	578,341,194	13·94
'82	2,792,283	626,876	31,881,901	2,711,885	84,449,777	601,450,977	14·04
'84	3,008,805	606,516	33,053,298	3,377,592	93,729,122	628,510,199	14·91

The profits made by public companies are thus seen to acquire an increasing importance in relation to the total income of the country. It is only in the income from mining and ironworks companies that any vicissitudes are apparent in recent years. The income from mines in 1862, which was 4,436,000*l.*, rose in 1875-76 to 14,614,452*l.*, since which it fell to 7,064,806*l.* in 1883-84. The income from iron works which in 1861-62 amounted to 1,079,589*l.*, rose in 1874-75 to 7,260,802*l.*, and fell the following year to 2,855,891*l.*, and in 1883-84 to 3,010,725*l.*, the effect of the fluctuation of prices of coal and iron. Other incomes show a constant increase. The amount of profits assessed of course does by no means represent in all cases the rate of profits, it being the result also of greater investment of capital. In railways, the total capital paid up in 1862 was 385,218,438*l.*,

and the proportion of net receipts to total paid up capital was 3·86 per cent. In 1884 the total capital paid up being 801,464,367*l.*, the net earning of the whole was 4·16 per cent. In truth the public companies in the United Kingdom have for many years acted as savings banks for popular investments. Would that they had been more successful. Would that they had been promoted with more regard to safety, and with more consideration for the limited resources of those induced to become shareholders. But passing by the unfortunate ones, what do these companies accomplish? They are the bankers of the world. They establish railways in all countries. They provide water and gas to the most populous cities. They build ships for every sea. They promote and establish by actual practice inventions often of a most profitable character. It is true that the competition they create is often keen and ruinous. That to the private trader especially the competition of companies is very severe. That the rates of profits are thereby reduced. And that in many cases the management of companies may compare unfavourably with that of private firms. But on the other hand there is more enterprise and boldness in companies. Their directors are able to impart more varied knowledge and experience. The combination of capital enables them to work on a large scale, and the publicity attending all the acts of such companies imparts a sense of security and guarantee which often does not exist as regards private firms. Much indeed may be said on the various aspects of the question, but I have no hesitation in pronouncing my opinion that the extension of joint stock companies, whether with limited or unlimited liability, has been attended with decided benefit to the whole community.

XII.—*Reforms in the Law on Joint Stock Companies.*

Many reforms are needed in the law. They may be said to consist in :—

1. A better system of registration, the same being extended to all kinds of partnerships and companies, with power to the registrar to refuse the registration of doubtful and unauthenticated facts not established by sufficient evidence. And also to refuse registration unless a given proportion of the capital has been subscribed and paid up.

2. The extension of the principle of limited liability to private partnerships duly registered as such, on the principle of partnerships *en commandite*, the managing partners having an unlimited liability.

3. The consolidation of both the law of partnership and the law of joint stock companies.

4. The publication of facts relating both to partnerships, and joint stock companies in a more complete manner.

5. Power to be given to the registrar to enforce the delivery of all documents and returns required by the Joint Stock Companies Acts, and the publication of all cases where such documents or returns were withheld, refused, or delayed.

We might indeed desire that the returns yearly laid before parliament were prepared with more completeness, and with greater aim to practical uses.

Surely there can be no difficulty in classifying all joint stock companies under such headings as :—

a. Insurance.
b. Banking, finance, credit.
c. Building.
d. Gas and water.
e. Hotels and clubs.
f. Land investments.
g. Mining, quarrying, smelting.
h. Printing and publishing.
i. Railways at home and abroad.
k. Colonies.
l. Shipping, navigation, canals, &c.
m. Telegraphs and telephones.
n. Trading, fishing, &c.
o. Miscellaneous subjects.

And under each class to give the number registered in the year, and total number of companies on the register at the end of each year, as well as the number removed from the register, for such causes as "no return," "ceased to exist," "wound up," "bankrupt," &c., &c.

But these are defects within the reach of the legislature to remedy. What is important to know is that joint stock companies when well founded at their inception, and subsequently managed with caution and economy, are of great benefit to the nation, and aid in the realisation of commercial and other enterprises of vast importance to the social and economic progress of the world.

XIII.—*Relation of Companies to the Depression of Trade.*

It has been suggested that the present depression of trade and industry may be in part owing to the undue extension of joint stock companies. It is possible that joint stock companies having more largely assisted the work of production at home and abroad than the work of distribution, may have had their share in causing the

lowering of prices. We may well imagine that the large number of abortive enterprises which they have promoted, and the losses thereby incurred, may have discouraged to some extent the investment of capital, and produced a want of spirit and confidence so essential in trade. And it may be that the sudden impulse thereby given to the demand for labour and rise of wages, followed as it has been by an equally sudden suspension and lowering of the same, disappointing and oppressive especially in certain districts, may have to some extent contributed to the existing depression. On the other hand we must remember that joint stock companies have perfected the means for the production of wealth; that if they have brought into existence for the moment perhaps too many spindles or too many ships, these instruments of production will be ere long required, and become profitable. And as to the prospects of returning prosperity in the trade and industry of the kingdom, so much desired, and so much delayed, we cannot ignore the important facts that the prices of raw materials, produce, minerals, and manufactures, are extremely low, that the discouragement to production in the last two years must soon operate in the reduction of stocks all over the world, that capital is abundant, and that the political clouds in Europe are being gradually dispersed. Though some well nigh despair to see trade once more assuming its wanted activity, I venture to say that the future gives hope of substantial improvement.

APPENDIX A.

Number and Nominal Capital of Joint Stock Companies Registered, 1863-84.

Years.	Number of Companies.	Total Nominal Capital.	Total Amount of Imports and Exports.	Proportion of Companies to £1,000,000 Trade.	Proportion of £1,000,000 Capital to £100,000,000 Trade.	Average Minimum Rate per Cent. of Discount Charged by the Bank of England.
		£	£			
1863....	790	139,988,000	445,821,000	1·77	3·18	4½
'64....	997	237,237,000	487,572,000	2·04	2·05	7½
'65....	1,034	205,392,000	489,904,000	2·11	2·39	4¾
'66....	762	76,825,000	534,196,000	1·22	6·93	7
'67....	479	31,465,000	500,986,000	0·95	16·12	2½
Avge.	812	130,181,000	491,695,000	1·65	3·37	5¼
1868...	461	36,528,000	522,472,000	0·88	14·11	2¼
'69....	475	141,274,000	532,535,000	0·89	3·77	3¼
'70....	595	38,252,000	547,338,000	1·08	14·39	3⅛
'71 ...	821	69,528,000	614,590,000	1·33	8·78	2⅞
'72....	1,116	133,041,000	669,282,000	1·66	5·10	4⅛
Avge.	693	83,724,000	577,243,000	1·20	4·35	3⅛
1873....	1,234	152,056,000	682,292,000	1·81	4·48	4¾
'74....	1,241	120,540,000	667,733,000	1·85	5·52	3¾
'75....	1,172	82,447,000	655,552,000	1·78	8·00	3¼
'76....	1,066	48,314,000	631,931,000	1·68	13·14	2⅝
'77....	990	66,800,000	646,766,000	1·83	13·16	2⅞
Avge.	1,140	92,031,000	656,554,000	1·73	6·89	3¾
1878...	886	65,857,000	614,254,000	1·44	9·30	3¾
'79....	1,034	75,568,000	611,775,000	1·68	8·05	2⅜
'80....	1,302	168,466,000	697,644,000	1·86	4·15	2¾
'81....	1,581	210,711,000	694,105,000	2·27	3·28	3½
'82....	1,632	254,744,000	719,680,000	2·26	2·82	4⅛
Avge.	1,287	153,469,000	667,491,000	1·93	7·16	3⅓
1883....	1,766	167,680,000	732,329,000	2·41	4·35	3 9/16
'84....	1,541	138,491,000	685,986,000	2·24	4·97	2 19/20
Avge.	1,653	153,085,000	709,175,000	2·32	4·66	2 19/20
Grand avge.	1,044	120,959,000	608,397,000	1·68	7·18	3¾

APPENDIX B.

Number of Banking and other Companies, with Amounts Paid-up in 1883.

[Parliamentary Paper, C–3542.]

	Number of Companies.			Amount of Paid-up Capital.		
	Banking Companies.	Other Companies.	Total.	Banking Companies.	Other Companies.	Total.
				£	£	£
London	151*	7,597	7,748	50,236,696*	362,653,087	412,889,783
Edinburgh	8	657	665	4,773,800	25,639,785	30,413,585
Dublin.....	6†	368	374	2,175,000†	20,805,707	22,980,707
Truro	nil	51	51	nil	964,999	964,999
	165	8,673	8,838	57,185,496	410,063,578	467,249,074

* Including Foreign and Colonial Banks, National Bank (Limited), and the Provincial Bank of Ireland.

† Exclusive of the National Bank (Limited) and the Provincial Bank of Ireland (Limited), which are registered in London.

There are in addition to the above the following joint stock banks which are not registered :—

	Amount of Capital Paid-up.
Chartered banks—	£
Bank of England	14,553,000
,, Ireland	3,000,000
,, Scotland	1,250,000
British Linen Company	1,000,000
Royal Bank of Scotland	2,000,000
Banks which are governed by 7 Geo. IV, cap. 46—	
Ashton, Staley Bridge, Hyde, and Glossop bank	50,000
Bank of Westmoreland	25,680
County Union Banking Company	56,000
Ludlow and Tenbury bank	7,750
Isle of Man Banks—	
Dumball's Banking Company	36,904
Isle of Man ,, ...	30,000
Total of unregistered banks	22,009,334
,, registered banks	57,185,496
	79,194,830

APPENDIX C.

FRENCH LAW.

Leading Principles of the Law of Commandite Societies par action of France, 24th July, 1867.

1. *Commandite* societies cannot divide their capital into shares or coupons of shares of less than 100 frs. when their capital does not exceed 200,000 frs., and of less than 500 frs. when the capital is above that amount.

Such societies are not held as definitively constituted till after the entire capital has been subscribed, and at least one-fourth of the amount of each share has been paid up; the subscription and the payment being proved by a declaration made by the manager in the form of a notarial act. To this declaration there must be annexed a list of the subscribers and the amount paid by each.

2. Shares or coupons are not negotiable till after the fourth has been paid up.

3. It may be arranged, but only if allowed by the deed, that shares or coupons of shares on which the half has been paid up may be converted into shares in favour of bearer. Whether shares remain nominative or be converted into shares to bearer, the purchaser as well as the seller of the share will remain liable for two years from the date of the decision to that effect for the other half of the amount.

4. In cases where any shareholder does not pay cash for his shares, or stipulates for himself any special advantage, the members of the society at their first general meeting will take account of what he has done for the society and of the advantages he has reserved for himself. The society is not held as definitively constituted till after the same has been approved, such approbation being confirmed at another general meeting after it has been duly summoned.

The second general meeting cannot give its approval to the arrangement agreed to at the first, unless a printed report of the same was sent to every shareholder five days before the meeting is held. The vote is taken by the majority of shareholders present, but the majority present must represent a fourth of the shareholders, and one-fourth of the capital paid in cash. Any shareholder who is affected by the decision cannot vote.

5. A council of surveillance, composed of at least three shareholders, must be constituted in every *Commandite* society by shares. The council is nominated by the general meeting of shareholders held immediately after the society has been constituted, and before any business is done. The members of such council are nominated for one year only, but are re-eligible.

6. The council must, in the first instance, see that all the articles of the society have been duly observed.

7. Every *Commandite* society by shares constituted contrary to the requirement of the Act is null and void as regards every interested person, though such nullity cannot be set against third persons by the partners.

8. Should the society be declared null and void, the members of the first council of surveillance may be held responsible, together with the manager, towards third parties for the cause of such nullity.

9. The members of the council of surveillance do not incure any personal responsibility for their management of the society, and for the results of their acts.

10. The members of the council of surveillance must audit the books, and report to the society any irregularity found in the balance sheet, as well as their motives for opposing in any case the distribution of dividends. The members of the council of surveillance have power to summon a general meeting, and also to demand the dissolution of the society.

11. The issue of shares in contravention with Articles 1, 2, and 3 is punished by fines of from 500 frs. to 10,000 frs. The manager also may be likewise punished.

14. The negotiation of shares for amounts less than what is required by Articles 1, 2, and 3, and before the fourth of the amount is paid up, is punishable by fines from 500 fr. to 10,000 fr.

17. Shareholders representing the twentieth part at least of the capital may in the common interest authorise at their expense one or more agents to maintain or defend any suit by or against the managers of *Commandite* societies by shares.

American Law.

Limited Liability is permitted in the American States.

In New York, New Jersey, Pennsylvania, Maryland, South Carolina, Alabama, Georgia, Florida, Mississippi, Connecticut, and Vermont, the business of banking and insurance is specially excepted.

The law of New York is as follows:—

Sec. 1. Limited partnerships for the transaction of any mercantile, mechanical, or manufacturing business, or of any other lawful trade or business, within the State, may be formed by two or more persons upon the terms, with the rights and powers, and subject to the conditions and liabilities herein prescribed, but the provisions of this title shall not be construed to authorise any such partnerships for the purpose of banking or making insurance.

Sec. 2. Such partnerships may consist of one or more persons who shall be called general partners, and who shall be jointly and

severally responsible as general partners are by law; and of one or more persons who shall contribute, in actual cash payments, a specific sum as capital to the common stock, who shall be called special partners, and who shall not be liable for the debts of the partnership, beyond the fund so contributed by him or them to the capital.

Sec. 3. The general partners only shall be authorised to transact business for the partnership, except as provided in Sec. 17, and no special partner shall be authorised to sign for the partnership or to bind the same.

Secs. 4—12 refer to the filing of certificate and publication of the Act.

Sec. 13. The business of the partnership shall be conducted under a firm in which the names of the general partners only shall be inserted, except that where there are two or more general partners, the firm name may consist of either one or more of such general partners, with or without the addition of the words "and "company," or "and Co.;" and if the name of any special partner be used in such firm with his privity, he shall be deemed a general partner; but the said partnership shall put upon some conspicuous place on the outside and in front of the building in which it has its chief place of business some sign, on which shall be painted in legible English character all the names in full of all the members of said partnership, and in default thereof no action shall be abated or recouped by reason of the proof of plaintiff of the partnership failing to meet the allegations of his pleading as to the names and number of the partnership, but the pleading may be amended on the trial to conform to the proof in that respect without cost.

Sec. 17. A special partner may from time to time examine into the state and progress of the partnership concerns, and may advise as to their management; he may also leave money to, and advance and pay money for the partnership, and may take and hold the notes, drafts, acceptances, and bonds of or belonging to the partnership as security for the repayment of such moneys and interest, and may use and lend his name and credit as security for the partnership, in any business thereof, and shall have the same rights and remedies in these respects as any other creditor might have. He may also negotiate sales, purchases, and other business for the partnership, but no business so negotiated shall be binding upon the partnership until approved by a general partner. Excepting as herein mentioned, he shall not transact any business of the partnership, nor be employed for that purpose as agent, attorney, or otherwise. If he shall interfere contrary to these provisions he shall be deemed a general partner.

Revised Statutes of New York, vol. iii, p. 2234 (1882). See also Kent's "Commentaries on American Law, 1873," vol. iii, p. 34.

APPENDIX D.

Gross Amount of Property Assessed to Income Tax on Public Companies.

[From the Twenty-eighth Report of the Commissioners of Her Majesty's Inland Revenue, 1885.]

Years.	Quarries.	Mines.	Ironworks.	Gasworks.	Salt Springs, &c.	Waterworks.
	£	£	£	£	£	£
1868–69	645,901	5,479,906	1,911,265	1,971,183	—	—
'69–70	696,617	5,544,099	2,018,564	2,157,274	—	—
'70–71	718,929	5,891,961	2,701,234	2,605,494	—	—
'71–72	755,765	6,335,071	3,140,995	2,667,498	—	—
'72–73	762,885	7,283,193	4,762,331	2,796,511	—	—
'73–74	814,204	10,545,832	7,218,053	2,665,853	—	—
'74–75	916,176	14,107,990	7,260,802	2,630,016	—	1,869,004
'75–76	952,138	14,614,452	3,855,891	3,030,192	183,783	1,965,404
'76–77	1,096,280	14,091,257	2,794,984	3,433,890	170,643	2,007,718
'77–78	1,341,068	12,899,691	2,315,077	3,923,150	122,604	2,166,606
'78–79	1,356,280	10,087,679	1,933,813	3,972,635	117,716	2,227,696
'79–80	1,149,753	7,501,485	1,720,610	4,175,389	143,259	2,349,801
'80–81	925,668	6,666,551	2,178,534	4,505,002	138,784	2,653,144
'81–82	922,808	6,728,243	2,904,621	4,640,363	154,777	2,792,283
'82–83	879,855	6,733,740	2,962,609	4,686,633	134,916	2,987,558
'83–84	913,888	7,064,806	3,010,725	4,879,470	138,341	3,008,803

Years.	Canals.	Fishings and Shootings.	Markets and Tolls.	Total.	Public Companies, &c., not detailed in previous Statement.
	£	£	£	£	£
1868–69	714,322	169,476	—	10,892,053	15,964,851
'69–70	746,591	173,610	—	11,336,755	16,619,877
'70–71	774,370	155,519	—	12,847,807	16,610,902
'71–72	753,321	155,141	—	13,807,791	18,400,494
'72–73	789,629	167,704	—	16,562,253	20,976,161
'73–74	755,039	182,413	—	22,181,394	23,452,937
'74–75	1,007,413	207,340	842,110	28,840,851	25,646,552
'75–76	2,865,465	203,069	674,460	28,344,854	24,490,379
'76–77	3,011,612	192,798	672,805	27,471,987	23,656,477
'77–78	2,993,373	412,816	593,715	26,768,100	23,452,906
'78–79	3,125,022	509,320	621,273	23,951,484	23,192,204
'79–80	3,189,428	535,841	612,062	21,377,608	23,110,512
'80–81	3,196,167	525,694	601,577	21,391,121	24,250,250
'81–82	3,392,683	539,855	626,877	22,702,509	27,153,682
'82–83	3,291,746	575,157	613,874	22,866,088	30,080,110
'83–84	3,365,126	572,185	606,516	23,559,862	33,935,370

Gross Amount of Property Assessed to Income Tax—Contd.

Years.	Railways in the United Kingdom.	Railways out of the United Kingdom.	Foreign and Colonial Securities. Other Sources.	Total Public Companies, Parts 1 and 2.
	£	£	£	£
1868–69	19,779,589	—	3,821,852	50,458,345
'69–70	20,718,421	—	3,585,480	52,260,533
'70–71	21,956,451	—	5,820,239	57,235,399
'71–72	23,129,102	—	6,318,846	61,656,233
'72–73	25,439,538	—	7,728,335	70,706,287
'73–74	26,035,351	997,000	10,443,774	83,110,456
'74–75	26,215,203	1,329,900	10,603,806	92,636,312
'75–76	26,116,520	1,835,582	10,985,135	91,772,470
'76–77	27,795,786	1,652,380	12,036,815	92,613,445
'77–78	28,290,611	2,200,965	11,789,878	92,502,460
'78–79	28,958,661	2,385,263	12,226,391	90,714,003
'79–80	29,367,957	2,093,871	12,425,157	88,375,105
'80–81	29,130,925	2,616,888	13,555,797	90,938,981
'81–82 ...	31,881,901	2,711,885	13,934,255	98,384,232
'82–83	32,075,332	3,264,094	14,527,890	102,813,514
'83–84	33,053,298	3,377,592	15,990,099	110,316,221

Discussion *on* Professor Leone Levi's Paper.

Mr. Purcell (Registrar of Joint Stock Companies) expressed his regret that he had been unable to afford the information asked for by Professor Levi for the purposes of his paper, as to the number of companies that had become operative in each year from the date of the passing of the Companies' Act of 1862. Such a return did not form part of the work of the registrar's office, and as he had no funds at his disposal with which to remunerate the clerks who would need to be employed after office hours in preparing it, the information had not been given. As a matter of fact there were no means of ascertaining, except by the filing of the annual returns, what companies were still carrying on business, and it would not always be safe to assume that because the annual return was not filed the company had failed. He would like to call Professor Levi's attention to the fact that limited liability was not fully recognised in all kinds of banking carried on by joint stock companies, because, by section 6 of 42 and 43 Vict., cap. 76, there was still unlimited liability as to bank notes. With regard to recent legislation affecting joint stock companies, it might be interesting to mention that under the powers conferred by the Act of 1880, 5,650 defunct companies had been struck off the register, the list now being clear of all such concerns down to

the year 1879. The effect of that Act had also been to make companies in working order more careful to send in regularly their annual returns and other documents required to be remitted to the registrar. He thought the author of the paper was right in his opinion that no good effect would result in the direction of the prevention of bogus companies from an increase in the registration fees, unless indeed the charges were made so high as to become prohibitive except to very wealthy combinations. With regard to the foreign laws relating to companies referred to by Professor Levi, he thought that the absolute inoperativeness of the Act of 1867, in the way of making the liability of directors and managers unlimited, proved that the special form of company favoured by Professor Levi would not answer in this country. It might be said that the permissive character of the English law had had something to do with that result, but to his mind it did not account for the absolute refusal on the part of many thousands of companies to adopt the provision as to unlimited liability contained in that Act. He believed that the true explanation would be found in the antipathy of the people of this country to official restraints or to any interference with the management of their own affairs. If, however, the present law should be altered in the direction of requiring the directors of companies to accept unlimited liability, the result would be that men of wealth would refuse to join such undertakings, whilst the men of straw, who would not of course have any fear of unlimited liability, would acquire the monopoly of management. With regard to the classification of companies, he thought it might be done in future, but to classify all the institutions that had been formed in the past would entail immense labour and considerable expense. At present he was obliged to supply the return of joint stock companies in the form ordered by the House of Commons, and had no option whatever in the matter, as Professor Levi seemed to imagine. The author had stated that it had never been contemplated that many of the smaller companies should come under the Act, but it was doubtful whether such ventures as clubs, public baths, hotels, &c., would have been entered upon at all but for the Act. There were very few private companies indeed which did not after a time place their shares in the market, principally owing to the death of large holders. In reference to the reforms in the law on joint stock companies, he thought his official position precluded him from entering upon their discussion.

Mr. T. H. Elliott said he gathered from the paper that Professor Levi was of opinion that the limited liability Acts had been exceedingly favourable to the development of the commerce of this country, but he (Mr. Elliott) did not think that opinion would be largely shared by others without some modification. It would be remembered that many of the commercial crises which had marked the present century had been caused by an abnormal development of joint stock trading in one form or another. Those who had had the opportunity of listening to the evidence taken by the Royal Commission on Depression of Trade could not but have been struck with the large number of witnesses from all parts of

the country, and especially from Lancashire and Northumberland, who had expressed the opinion that the limited liability Acts were in some degree prejudicial to the commerce of the country; and the conclusion he had arrived at from a study of that evidence was that there was a tendency in the case of companies formed under those Acts to indulge in more or less irresponsible trading, and to stimulate production beyond its proper limits. Such companies in some cases exercised borrowing powers to excess, and when only a small proportion of capital was paid up, proceeded to raise money by loans and debentures of various kinds to an undue extent. He thought it would be wise to restrict them, as in the case of railways, to borrowing on debentures only in some definite proportion to the paid up capital. It was a remarkable fact that two of the great industries which had been specially depressed, the shipping trade and the cotton spinning industry, were those in which special facilities had presented themselves for the formation of joint stock companies, with the result that in each case over production had ensued. One of the remedies suggested was the publication by the companies of their balance sheets; but he was inclined to think that the only result of that would be the discovery a little earlier on the part of those who had invested in them that the concerns with which they were connected were in an unsatisfactory condition, whilst to stop their formation altogether, except where some government department was satisfied with the conditions under which the company was floated, would savour too much of paternal government. He thought one means by which such companies might be prevented from attaining unreasonable limits might be by the imposition of a small special tax on their capital, as some equivalent for the special advantages under which the State permitted them to carry on their operations. Such a tax might fairly be used to reduce the income tax paid by individual traders, who did not carry on business under the same privileged conditions. An impost of 2*s.* 6*d.* per cent. upon the capital invested in joint stock companies would yield sufficient to relieve income tax payers to the extent of one penny in the pound, and this would place the individual trader on a more equal footing with such organisations. The man who in his business felt that his responsibility extended to the whole amount of his property, was he for whom the State ought to have an especial regard, and great care should be taken to prevent such a trader from being handicapped by undue competition on the part of those to whom failure was not a matter of such momentous concern.

Mr. Ernest Clarke regretted that Professor Levi had not referred in greater detail to the reforms required in joint stock companies' law. His first recommendation was a better system of registration. It was generally felt that the information now obtainable from Somerset House was insufficient and unsatisfactory. If undertakings chose to avail themselves of the facilities afforded by the Companies Acts, there was no valid reason why they should not be called upon to send their balance sheets as well as their lists of shareholders to the central office. Such balance sheets should be in an appointed form, according to the class of company

concerned. More stringent supervision should moreover be exercised by the authorities over the returns that were now sent in. At present everything was left to the common informer, a very undesirable profession, and one with which few people care to be associated. He should have been very glad if Professor Levi had found time to go into the question of cycles of company formation, *i.e.*, what might be called company manias, such as the flood at different periods of sewage, asphalte, Indian gold mine, and electric lighting companies, and more recently the conversion of all sorts of private undertakings into joint stock companies. If Government would clothe the Board of Trade authorities with larger powers over these companies, it would be a great benefit to everybody, because there could be no doubt that people were deluded by the specious arguments of promoters, while the preparation of prospectuses had become quite a service. Amongst the practical points which were suggested to him by a necessary hasty perusal of the paper were the following: The question of allotment of shares ought to be legislatively attended to. When a company was a success, the directors allotted shares to their friends, but when it failed and all the capital was not subscribed, applicants for shares were foisted with the full amount applied for. Either there should be a fixed limit appointed by law, as the minimum proportion of the capital which must be subscribed for before the company could go to allotment; or, which would be better, companies should be compelled to state on their prospectuses the proportion under which they did not intend to allot. He also suggested whether limited companies might not be compelled to deposit a certain sum as security for the carrying out of their undertaking, as was done in the case of railways and tramways. The small shares of 1*l.* each, which were now so much in vogue, were very troublesome, and were difficult to deal in without disproportionate loss to the buyer or seller. The author stated that in France the shares of *sociétés en commandite* could not be less than 4*l.* where the capital did not exceed 8,000*l.*, nor less than 20*l.* where the capital exceeded that amount. The historic English share was of 10*l.*, and he thought they might fairly say that there should be no share of a less denomination than 5*l.* Referring to what Mr. Elliott had said as to borrowing powers, he (Mr. Clarke) saw no objection to a company in general meeting borrowing as much as they liked; what he objected to was that the directors should borrow unrestrictedly. Many articles of association contained clauses giving almost absolute powers in this respect to the directors. That should be impossible, and a general meeting should always be called when borrowing powers beyond a certain amount were proposed to be exercised. The unlimited liability of directors was authorised by the Act of 1867, but he did not see the difficulty which Mr. Purcell seemed to imagine would follow the adoption of that practice. No doubt such companies would have to be ear marked in some way. Probably in the future of joint stock companies' enterprise there would be different kinds of companies, with various kinds of liability, and in that case they might fairly have those societies *en commandite* which Professor Levi described, and which he had also favoured in his paper of 1870.

Mr. H. Moncreiff Paul thought that the adoption of the French system referred to by Professor Levi of unlimited liability for directors of limited undertakings, while raising the standard of the directorship, would seriously interfere with the supply of directors. He was sorry he could not agree with Professor Levi as to the non-limitation of borrowing powers. The rule imposing a limitation was he thought a very wholesome one; many people did not distinguish between a debenture and a mortgage debenture, and all companies ought to have a limit to their borrowing to the extent of the uncalled capital, otherwise a limited company so called would be practically unlimited, and debenture holders would really have no security but the credit of the company. He regretted that for reasons stated Professor Levi had been unable to get the information necessary to enable him to set out in tabulated form the authorised nominal capital, the capital offered, and the cash deposited or subscribed in respect of each company as registered from year to year up to 1885, as a return of that kind would be exceedingly useful. In 1882 the authorised capital of the companies registered during the year was 91,600,000*l.* In 1884 the nominal capital for the 120 companies then registered was 36 million £, and of that the capital offered to the public was 25 million £, and the cash deposited was 6,900,000*l.*, or 28 per cent. In 1885 there were 95 companies registered with a nominal capital of 20,377,000*l.*; the capital offered being 15,169,000*l.* and the cash deposited 5,994,000*l.*, or 39 per cent.; showing that in 1885 with a smaller number of companies there was a larger percentage of cash deposited than in 1884. Analysing the 120 companies of 1884, he found that the private undertakings, industrial, and invention companies were 31 per cent. of the whole, the remainder consisting of land and finance, produce, railways, omnibus, tramways, hotel, mining, cattle ranche, harbour, pier, docks, insurance, banks, gas, and water works. Similarly in 1885, of the 65 companies, 50 per cent. consisted of private undertakings, industrial, and invention companies, the remainder being of a like category to those registered in 1884. The reasons generally why private undertakings were converted into public companies were first from want of success as private undertakings, and the consequent desire to transfer to the public the burden borne by the partners; second in order to provide new capital to replace that withdrawn in consequence of death or retirement of the senior partners; and third, to enable such undertakings, if successful, to extend their operations, when they found it impossible to secure privately sufficient capital for the purpose. Attention has been called by a previous speaker to the mania which at times existed for the establishment of certain kinds of companies. This was quite true, and as an instance he might cite that of cattle ranche companies, the demand for which had recently sensibly declined, there being only four registered in 1884, and two in 1885. Many such undertakings now returned no dividends to their shareholders, the maximum paid being 10 per cent. according to recent records on the Edinburgh Stock Exchange, where some years ago they were much run after. On the question of reform, while agreeing with the suggestions of Professor Levi, he thought something ought also

to be done whereby the prospectuses should be so supervised as not to go before the public containing statements which were apparently facts but which were in reality not so. It was quite a common thing for the names of selected companies to be quoted in a prospectus as being successful which did a business not analogous to that proposed in it. The recent increase in bank deposits was due in great measure to the slackness of trade. When trade revived there would be a withdrawal of bank deposits, and the money would pass into its more legitimate channel for trade purposes. While the long wished for improvement in trade had been long delayed, the reasons for this being so were to be found in the facts, that the last winter had been unduly prolonged, that the state of political affairs both at home and abroad, and the strikes in America as well as in Europe had induced a want of confidence amongst traders generally, notwithstanding the low level of prices, to purchase beyond their immediate wants.

Mr. W. Leigh Bernard (Barrister-at-Law) concurred in the observations made by other speakers as to the objections to reforming the existing law of companies in the direction suggested generally by the paper read by Professor Levi, inasmuch as most of the questions raised were fully considered by a parliamentary committee, which sat so far back as 1867, to consider the question of legislation in connection with joint stock companies; and it is believed that the Companies Act of 1867, subsequently passed, remedied all objections that could properly be legislated on, save and except the position of banking companies, which has been dealt with by later Acts. An unsuccessful attempt was made recently in the abandoned Shipping Bill to make the liability of shareholders in shipping companies unlimited, but the general impression in commercial circles, as far as he understood the matter, was that it would be a great mistake to put any further restrictions on companies, as thereby trade would suffer, and the public as a rule knew how to take care of their own interests without State interference. Of course much might be done in connection with the proposal to consolidate the law of partnership and the law of joint stock companies, as owing to the existing state of the law of partnership, many trading undertakings were turned into limited companies because it was impossible to induce capitalists to become limited partners therein. It is well known that the tendency of the present age is combination, and in many businesses it is impossible to realise remunerative profits on the old fashioned basis, owing to the improvements in machinery and other causes which involve an outlay of capital quite beyond the reach of many small though long established manufacturers. It was a matter of regret that Professor Levi had not said something in his paper about the law on those subjects in the United States, as then the members would have been able to have formed a more accurate opinion as to what ought to be done with regard to them in this country. In America any number of persons from two upwards could associate themselves together in partnership and be limited in their liability to a fixed amount, but he was sorry to say such a state of things did not exist in this country.

As to restricting joint stock companies in their borrowing in the same way as railway companies, he thought it would be difficult to make a general law which should be applicable to all companies. He also thought it would be an advantage if the returns of companies were drawn up somewhat in the same way as those supplied by friendly societies, showing the amount of subscribed capital, debentures, profit and loss, and so forth, because then there would be very little difficulty in getting at the exact figures, and the Registrar of joint stock companies would then be in a position to make a return to Parliament annually of the position of each company. The returns at present furnished dealt only with new companies registered in each calendar year, and it would be a great advantage if those returns included particulars of all companies in existence at the time the return was prepared.

Mr. Rowland Hamilton pointed out that so many subdivisions of industry were carried out by joint stock enterprise, that no comparison could be made between the capital embarked in them and the aggregate of imports and exports, to which that of the home trade should be added. It should also be remembered that the large profits of banks, assurance companies, and the like, though calculated on the "paid up capital," were largely earned by savings accumulated under the name of "reserved funds" or undivided profits. He thought that unlimited companies had been unduly blamed as leading to excessive competition. Going back in the history of trade, complaints of depression were to be found periodically in even greater degree long before the principle of limited liability was admitted. If directors were subjected to special and arbitrary penalties, no one with either money or character to lose would be found to undertake the office. Joint stock companies might roughly be divided into two classes. Those which, as Adam Smith pointed out, could be carried on under comparatively certain rules, such as banking and assurance companies and the like; and those, on the other hand, such as mines and pioneering enterprises, which were exposed to special risks, which might advantageously be restricted by "limited liability." He demurred also to the assumption often made, that the interest of creditors was solely and exclusively to be considered. The injury done to large branches of commerce by spurious trading had, in some well-known cases, been increased and maintained by credit accorded solely on the unlimited liability of shareholders which would otherwise have been withheld from the defaulters as known to be recklessly overtrading by those conversant with the branches of commerce which so unfairly suffered from their malpractices. He entirely approved, however, of all legislation which would secure due registration and full investigation into the affairs of joint stock companies, but shareholders must not be led to trust to the law to save themselves from their own indiscretion.

Mr. John Coles said Professor Levi had stated that there were twenty-seven telegraph companies with a capital of 3,300,000*l.*, but he (Mr. Coles) was acquainted with one whose capital exceeded that amount. He should like to know whether the insurance

societies referred to in the paper were fire or life or marine societies. Perhaps if the author had given a larger number than eight companies he would have given a better sample of the return, or if he had confined himself to a particular class of companies he would have been better able to judge of it than by taking the word "insurance."

The PRESIDENT said it would perhaps interest the members to know what was the view taken upon this subject by the International Statistical Congress which met at Budapest in 1877. At the Hague the request was made to Professor Engel, the then head of the Prussian Statistical Bureau, to prepare a statement as to the joint stock companies of the several countries of Europe. He undertook the task, but at Budapest he reported that he had found it impossible to collect the information in a shape that would enable him to bring it before the congress, although he had a small library of documents which he had collected from the different countries. He requested that the question should again be brought before the congress, and accordingly two of the sections, the one of "Justice" and the one of "Commerce," united for that purpose, and reported to the congress to the effect that it was desirable that in each country every joint stock company should report to the statistical bureau of the country a statement of every fact relating to such company from the commencement of its existence; that all papers, that was to say prospectuses, containing facts relating to its formation, capital, allotment, calls, balance sheets, circulars, and every printed paper affecting the concerns of the company, should be forwarded to the registrar's office, and that from this information the registrar or the statistical bureau should prepare an analysis, and publish annually for the benefit of the country the essential points relating to the condition of the several companies, so that in fact information which was now partially given here by stock brokers and others, should be given fully and largely to the public on the responsibility of the Government. The congress assembled at Budapest adopted those resolutions, and considered that it was advisable that this practice should be universally adopted. Mr. Ernest Clarke had referred to the fluctuations in the formation of these companies, and to the singular characters that they took at different times. He (the President) was sure that if Mr. Clarke would furnish a paper on the subject it would be very full of interest, and would contain considerable instruction. The only other point that he would notice was, that to throw upon the registrar the responsibility of refusing to register all doubtful or unauthenticated facts was an impossibility; it was a thing that no public office could undertake, and a thing that the English public would not submit to.

Professor LEVI, in reply, said he wished to thank those gentlemen who had contributed by their various suggestions quite as much and more than he had himself been able to contribute to the discussion on this important subject, but one or two points would require to be referred to. Mr. Purcell had stated that though

limited liability was introduced for banking, liability on bank notes was still unlimited, but except as bank notes banking companies were now formed on the principle of limited liability. He also stated that good results had arisen from the power given by the Act of 1880 in striking out those companies that had not made returns; but he had not yet published any facts from 1880 to 1885 showing those results, so that the public were quite ignorant of the number struck out. He did not think that the imposing of unlimited liability on directors of companies could at all be considered in the light of paternal legislation; it was simply a question of law, of morals, and of practical business. It was not protecting anyone, but only provided that those who had the direction of business, and initiated certain enterprises, ought to be more responsible than those who were outside and took no part in the transactions of the firm. Mr. Elliott had quoted opinions from Liverpool, Manchester, and other towns, as to over production caused by limited liability companies, but it must be remembered that if they had contributed to over production, they had also largely extended business of a legitimate character, and had offered greater facilities for small investments than had previously existed. The advantages conferred by limited liability companies must be put against the disadvantages which had arisen from them. He should have been glad to have expanded on the remedies suggested on the present state of the law, but it was not possible in a paper to enter into details. He did not approve of papers read before that Society having the character or length of books. What they wanted was to get a large number of opinions from the members. On the consolidation of the law of partnership, a Bill was brought before Parliament in 1880, by Messrs. Whitwell, Norwood, and Mackintosh, and Lewis Fry, under the auspices of the Associated Chambers of Commerce, combining the statute law with some of the principles of common law, upon somewhat a similar basis as the new law on bills of exchequer. That Bill was withdrawn, but he hoped that sooner or later it would be brought in again. In 1884 a Companies Acts Consolidation Bill was brought in by Mr. Monck, Sir John Lubbock, and Mr. Henry H. Fowler, but that also was withdrawn. There were several Acts in force on joint stock companies, and it would be a great advantage if those Acts were consolidated and brought into shape, removing clauses that had been altered or affected by subsequent statutes. He should certainly take advantage of the suggestion of including in his paper some particulars of the law of the United States. It was however based almost entirely upon the French law, and there was no great difference between them. Reference had been made to the smallness of capital stated as pertaining to some classes of companies. What he (Professor Levi) had been dealing with was the paid up capital and not the nominal capital; the paid up capital was considerably less in all cases. He hoped the Council of the Society would send a communication to the Board of Trade recommending the production of a classified annual return of joint stock companies, and that some members would move for the same in the House of Commons.

Foreign *and* Colonial Tariffs *as influencing* Prices *and affecting* Trade. *By* Stephen Bourne, Esq.

[Read before the Statistical Society, 16th March, 1886. The President, Sir Rawson W. Rawson, K.C.M.G., C.B., in the Chair.]

CONTENTS:

	PAGE
I.—Progress of Trade of United Kingdom	275
(A). Decline in Value	275
(B). Increase in Volume	277
(C). Decrease in Prices	279
II.—Influence of Foreign Tariffs.	281
(A). On Imports into United Kingdom	281
(B). On Exports from United Kingdom	281
III.—Progress of other Countries..	284
IV.—Influence of Tariffs on Prices	287
(A). United States	289
(B). Other Foreign Countries	295
(C). British Possessions	296
V.—Operation of Tariffs in Restraint of Trade	298
(A). Foreign	298
(B). British	301
VI.—Recapitulation	303

It may be within the recollection of those who were Fellows of this Society ten years since, or who have followed the numerous papers and discussions which have since then so largely occupied its meetings, that about that time in the concluding paragraph of a paper I had then the honour of reading, this remark occurred: "I firmly believe that Britain [in its trading relations] now stands "tottering on the eminence to which she has attained, and that it "rests entirely with her sons whether a further rise or a rapid fall "is to mark her future history."* Some three years previously I had written elsewhere: "The conclusions to be drawn from the "facts disclosed in these [Board of Trade] returns, when viewed "in connection with the diminution in our exports, which has "been for some time slowly advancing, are by no means consolatory "or reassuring,"† and "thus far there appears nothing to remove "the impression, that an extending importation of articles to be consumed as food, unaccompanied by an increased exportation of our "own produce and manufactures, cannot be a satisfactory condition "of trade."‡

The first quoted of these sentences drew from Mr. Shaw-Lefevre, speaking as President of our Society, in June, 1878, "I think the "credit is due to Mr. Bourne for having first called attention to "this phenomenon [the great and growing difference between the

* *Journal*, March, 1877, vol. xlii; and "Trade, Population, and Food," Bell and Sons, 1880.

† "Lloyd's List," 30th July, 1873.

‡ Ibid., 26th January, 1874.

"value of the imports and exports of this country], in a paper "which he read last year. Though I do not share the gloomy "conclusions which Mr. Bourne draws from these figures, yet I "think they are well worthy of consideration, and require an "explanation." During the intervening years between then and now, there has been no lack of consideration given to this phenomenon, but without bringing forward any such explanation as would commend general acceptance; and there seems yet to be room for the investigation of any materials which may either disclose the course of subsequent events, or suggest any factor of importance in producing the present condition of our trade. It is with no intention of reopening a discussion upon the much vexed question of the "Preponderance of Imports over Exports" that I again venture to occupy the attention of the Society during another evening, but in the belief that the subject which forms the title of this paper, that is, the fiscal arrangements of other countries, is one which necessarily has great influence primarily on the extent of our exports, and secondarily on that of our imports. Together these form the greater portion of that trade, the deplorable depreciation of which can no longer be denied, and from which no recovery, or opening through which it is to come, has yet been made apparent. The question presented for discussion, or rather for inquiry, is the effect of these regulations upon the countries between whom the commerce of the world is carried on, and consequently upon their capacity or disposition to become or continue to be our customers. To show the progress and present condition of our own trade in comparison with that of other nations: The first of the following tables gives the values set forth in the annual statements of our own trade for the last fifteen years in its several branches of imports, re-exports of imported goods, and exports of British produce and manufacture; together with the difference between the imports remaining here, and the exports on which our own producing or manufacturing industry has been employed. The year 1871 has been chosen because in that year an altered mode of obtaining the value of our imports took place, which may possibly affect the accuracy of a comparison with former years, and a column showing the population of the United Kingdom has been added; since it is the relation of these figures to the numbers who have to be fed and to be employed in procuring that food, together with other necessaries or luxuries, and in the acquisition of wealth, which forms so important a feature in our natural welfare. These figures, together with those that follow, analysing the fluctuations in volume and value, will tell in some degree whether the "gloomy "conclusions," as they were then thought, have or have not been realised by subsequent events.

I.—*Progress of Trade of United Kingdom.*

TABLE I.—*Showing the Total Imports, Re-Exports of Foreign and Colonial Goods, and Exports of British and Irish Produce, with the Net Difference, and the Population of the United Kingdom for the Years* 1871-85.

[In million £ to two decimals.]

Year.	Foreign and Colonial Goods.		British and Irish Exports.	Net Difference.	Population.
	Imported.	Re-Exported.			
	£	£	£	£	
1871	331·02	60·51	223·07	47·44	31·51
'72	354·69	58·33	256·26	40·10	31·84
'73	371·29	55·84	255·17	60·28	32·12
'74	370·08	58·09	239·56	72·43	32·43
'75	373·94	58·15	223·47	92·33	32·75
'76	375·15	56·14	200·64	118·37	33·09
'77	394·42	53·45	198·89	142·08	33·45
'78	368·77	52·63	192·85	123·29	33 80
'79	362·99	57·25	191·53	114·21	34·16
1880	411·23	63·35	223·06	124·82	34·47
'81	397·02	63·06	234·02	99·94	34·93
'82	413·02	65·19	241·47	106·36	35·29
'83	426·89	65·64	239·80	121·45	35·61
'84	390·02	62·94	233·03	94·05	35·96
'85	373·83	57·90	213·03	102·90	36·33
Average....	380·96	59·23	224·39	97·34	33·85

(A.) *Decline in Value.*

It is thus clearly shown that the value in each branch of our trading operations is now lower than it has been at any time since 1879, when the population by whom, or for whose benefit they are carried on, numbered 2·17 millions less than at present. They are likewise below those of the average of the fifteen years included in the table. Last year the net imports averaged 8·71*l.*, per head, and the exports 5·86*l.*; for the whole period, imports 9·62*l.* and exports 6·71*l.*; the highest amounts ever reached were in 1883, for imports 10·14*l.*, and 8·05*l.* for exports in 1872.

It would however be useless to deem the foregoing figures as truly representing the progress of our trade with foreign countries and our colonies, without some attempt to show in what degree the values were representative of alterations in the bulk of goods imported or exported, and of variations in the prices at which they have been bought or sold; I have therefore reproduced in brief the results of lengthened investigations which have from time to time appeared elsewhere. The method pursued has been each year to calculate the quantities of each article shown in the official trade returns at the prices of some previous year, and assuming

that the values of those not shown by quantity would have varied in the same ratio as those which are so shown, to take the total thus arrived at as indicative of the bulk of the later year in comparison with the former. Having thus reduced the altered volume into terms of money, it becomes evident that any further divergence between the values of the two years must have been due to the prices having differed. This method of estimation, applied to a portion of the trade in 1873, led to the earliest of the remarks quoted in the beginning of this paper. It was used in the "Economist" of 27th July, 1878, to compare the imports and exports of 1877 with those of 1872, and has been continued in that Journal for each succeeding year. A similar process of calculation was adopted by Mr. Giffen in the Board of Trade tables published in 1879, and at intervals since that.

In the following table 1872 is the first year so dealt with, by bringing it into comparison with 1877, and thence onwards each year is compared with its predecessor, thus showing the periodical variations in both quantity and price, and furnishing a record of progress from 1872-85. It will be noted that 1880, the year following that of the greatest depression, until recent ones, is marked by an increase on every line, while the last two years, with trifling exceptions, show minus amounts throughout. The successive yearly additions and deductions bring the information onwards to the end of last year; since when there has been a further fall in each branch.

TABLE II.—*Showing the Value of all Imports and of Exports of British and Irish Produce, with the subsequent additions or otherwise, distinguishing the Amounts Due to Variations in Quantities and in Prices.*

[In million £ to two decimals.]

	Imports.			British and Irish Exports.		
	Value.	Quantity.	Price.	Value.	Quantity.	Price.
	£	£	£	£	£	£
1872	354·69	....	....	256·26	....	....
'77	+ 39·73	+ 57·05	− 17·32	− 57·37	− 11·94	− 45·43
'78	− 25·65	− 2·28	− 23·37	− 6·04	− 1·79	− 4·25
'79	− 5·78	+ 11·68	− 17·46	− 1·32	+ 10·18	− 11·50
1880	+ 48·24	+ 28·13	+ 20·11	+ 31·53	+ 23·55	+ 7·98
'81	− 14·21	− 11·70	− 2·51	+ 10·96	+ 33·81	− 22·85
'82	+ 16·00	+ 21·21	− 5·21	+ 7·45	+ 14·57	− 7·12
'83	+ 13·87	+ 24·09	− 10·22	− 1·67	+ 3·49	− 5·16
'84	− 36·87	− 25·54	− 11·33	− 6·77	+ 2·74	− 9·51
'85	− 16·19	+ 5·65	− 21·84	− 20 00	− 9·04	− 10·96
Total, 1885..	373·83	+ 108·29	− 89·15	213·03	+ 65·57	− 108·80

(B.) *Increase in Volume.*

The result of these figures is to show that whilst in the fourteen years we have increased the volume of our imports by 108·29 millions, or 31 per cent. on 354·69*l.*, the value in 1872, we have obtained them at a diminished price of 89·15*l.*, or 25 per cent. The exports of our own manufactures have in like manner increased by 65·57*l.*, 26 per cent., on 256·26*l.*, the value in 1872, for which we have received less by 108·80*l.*, or 42 per cent.; the difference between our saving in price on the one and the loss on the other being to our disadvantage.

It thus appears that in the first of these years we had exports to the amount of 256 millions to set against net imports of 296 millions, whilst in the last there was but 213 millions as against 316 millions, or an increase of difference between the two from 40 millions to 103 millions, of which 43 millions may be ascribed to the extra quantities imported contrasted with those exported, and 20 millions to the deficiency in the prices received over those paid. With regard to these values, it must always be remembered that both are taken on the goods as they stand in our harbours; consequently the imports have paid the costs of transit, which have yet to be added to the exports. This, after the most elaborate investigation, I estimated to be equal to 11 per cent. off the import value; and this has been since then reiterated by the Cobden Club, but whether as the result of independent inquiry, or adopted on my authority, I have not been able to ascertain. I should be glad to think it was the former, but fear it must be the latter, for exactly the same data on which I worked was certainly never in the hands of any other writer, and the margin of possible error is too wide for any two persons to have fixed upon an odd sum like 11 per cent. It often happens too that the movements of bullion may account for some part of the balance, but these at the two periods were not such as to produce other than an insignificant effect. Nor can the rates of freight, low as they were last year, count for more than 5 millions, if for so much. It follows therefore that in the interval the nation has either increased the sources, other than by exchange, from whence to earn or pay for the excess of imports to the extent of at least between 60 millions and 70 millions, or has fallen off in its powers of profitable exchange. If the former were the true solution, should we not be rejoicing in trade expansion? Is not the depression over which we are mourning a proof that the latter explanation is the true one? Is not the influence of foreign and colonial tariffs on prices a very probable factor in thus affecting trade?

It has seemed necessary, at the expense of occupying much

space, thus to set forth the conditions and progress of our trade in recent years, both as laying the groundwork of the proposed investigation, and also placing on record for comparison in future years the results of the very elaborate calculations that have been made. To give a further insight into the classes of goods within which the changes have taken place, the following table (III) roughly divides the imports into those which supply the food for consumption, and those which furnish our industries in the two great branches of textile and metallic manufacture; likewise certain articles wholly or partially manufactured; and a considerable number which it is difficult to define other than as miscellaneous, though there has been much labour bestowed on many of these. A somewhat corresponding division of our exports follows. With regard to both these tables, it is necessary to point out that excepting in the last two years a portion only of the goods are shown. An alteration in the classification of the official returns rendered the whole possible in 1884; previously it was confined to specified articles. These however embraced the chief of those relating to our textiles and metals. Neither, though the amounts given as variations of quantity and price are correct, do the totals always agree with the alterations these produce on the total of the year, because of corrections introduced in the official tables from time to time on the final making up of the accounts for each year after these computations had been made. These discrepancies are trifling if we except 1884, when the transition took place which served to swell each total, especially those of manufactures and miscellaneous.

TABLE III.—*Showing the Gross Importations into United Kingdom from* 1872 *to* 1885, *divided into Classes, with the Increases or Decreases in each for Quantity and Price.*

[In million £ to two decimals.]

Year and Variations.	Articles for Food.	Materials.		Manufactured.	Miscellaneous.
		For Textile.	For Metal.		
1872. £283·28*	147·33	91·13	12·38	....	32·44
Quantity	+ 34·06	+ 1·37	+ 6·89	....	+ 6·89
Price	+ 2·38	− 17·38	− 5·66	....	+ 0·26
1877. £311·89.....	183·77	74·92	13·61	....	39·59
Quantity	+ 3·58	− 2·50	+ 0·32	− 0·05	− 3·69
Price	− 15·74	− 3·34	− 1·34	− 0·12	− 3·41
1878. £295·01.....	172·67	70·43	13·31	6·70	31·90
Quantity	+ 11·34	+ 5·02	+ 0·54	+ 0·75	− 3·73
Price	− 10·04	− 2·34	− 0·87	− 0·34	− 1·45
1879. £293·89.....	173·97	73·11	12·98	7·11	26·72
Quantity	+ 5·23	+ 7·22	+ 3·05	+ 2·00	+ 5·45
Price	+ 8·00	+ 3·90	+ 0·87	+ 0·12	+ 3·52
1880. £333·25.....	187·20	84·23	16·90	9·23	35·69
Quantity	− 6·83	− 0·40	− 0·05	− 1·32	− 1·18
Price	+ 0·32	− 0·79	− 1·06	+ 0·20	− 0·77
1881. £321·37.....	180·69	83·04	15·79	8·11	33·74
Quantity	+ 1·82	+ 6·62	+ 1·90	+ 0·50	+ 7·60
Price	− 0·52	− 3·35	+ 0·26	+ 0·05	− 2·58
1882. £335·10.....	181·79	86·30	17·95	8·66	40·40
Quantity	+ 19·65	− 0·99	+ 0·68	+ 0·53	+ 2·21
Price	− 7·39	− 1·97	− 0·77	− 0·31	− 0·80
1883. £345·94.....	194·05	83·34	17·86	8·88	41·81
Quantity	− 15·92	+ 2·09	+ 0·43	+ 3·17	− 0·76
Price	− 16·21	− 0·55	− 1·30	− 2·86	− 3·93
1884. £389·77.....	174·27	86·30	16·81	57·12	55·27
Quantity	+ 12·52	− 10·09	+ 1·25	+ 1·89	+ 0·c8
Price	− 13·54	− 2·56	− 1·77	− 1·85	− 1·86
1885. £373·83.....	172·74	73·65	16·29	57·16	54·00

* The whole of the articles not classified until 1883.

(c.) *Decrease in Prices.*

These tables, together with those that have gone before, exhibit just those results which we are prepared to expect from the combined effects of our own tariff and those of other nations, taken in conjunction with the continual increase of our population. Our own, placing no restriction upon the gathering supplies from all quarters of the globe, permits of increasing importations of all

TABLE IV.—*Showing Exports of British and Irish Produce from* 1872 *to* 1885, *with Variations for Quantity and Price.*

[In million £ to two decimals.]

Year and Variations.	Articles for Food.	Textile Fabrics.	Metal.	Miscellaneous.	Foreign and Colonial.
1872. £191·85	*	131·58	51·51	8·76	42·10
Quantity	....	− 5·91	− 6·41	+ 2·02	− 3·25
Price	....	− 25·12	− 12·76	− 1·31	− 2·22
1877. £142·36	*	100·55	32·34	9·47	36·63
Quantity	....	− 1·67	− 0·30	− 0·38	+ 0·76
Price	....	− 2·70	− 2·15	− 0·46	− 1·61
1878. £138·46		98·65	29·89	9·92	37·76
Quantity	....	+ 2·52	+ 3·48	+ 0·79	+ 4·39
Price	....	− 5·15	− 2·63	− 1·30	− 1·46
1879. £136·17		96·02	30·74	9·41	40·69
Quantity	....	+ 9·87	+ 7·00	+ 1·43	+ 0·38
Price	....	+ 3·08	+ 3·26	− 0·11	+ 1·35
1880. £160·70	*	108·97	41·00	10·73	42·42
Quantity	....	+ 9·20	+ 3·65	− 0·31	+ 0·24
Price	....	− 4·56	− 3·70	− 0·21	− 0·81
1881. £164·77	*	113·61	40·95	10·21	42·61
Quantity	....	− 1·03	+ 3·59	+ 0·50	+ 2·95
Price	....	− 1·64	+ 1·10	+ 0·01	− 0·74
1882. £167·31	*	110·95	45·64	10·72	44·82
Quantity	....	+ 3·03	− 0·55	+ 1·04	+ 1·05
Price	....	− 3·47	− 1·21	− 0·44	− 2·11
1883. £165·72	*	110·52	43·88	11·32	43·76
Quantity	+ 0·67	+ 2·06	− 0·42	+ 0·43	− 0·88
Price	− 0·83	− 4·59	− 3·50	− 0·69	− 2·31
1884. £232·93	10·46	124·86	71·91	25·70	62·44
Quantity	− 0·49	− 3·17	− 3·94	− 1·44	− 2·33
Price	− 0·05	− 5·40	− 4·80	− 0·69	− 2·71
1885. £213·03	9·92	116·31	63·23	23·57	57·90

* Included in miscellaneous until 1884.

the articles we use, or consume, hitherto in even larger proportion than the addition to our numbers has been. Thus there has been plenty of food, no lack of the miscellaneous articles of convenience or luxury which we find it easy to procure from abroad, and of all these the price has been kept down. Other tariffs than ours, by increasing the cost of our manufactures to foreign consumers, show their effects in having retarded the annual growth of our exports in quantity, until now an actual falling off has commenced; and they exercise a marked influence on the prices we are able to obtain.

II.—*Influence of Foreign Tariffs.*

(A.) *On Imports into United Kingdom.*

It might be thought that the fiscal arrangements of other countries would scarcely control the extent of our imports. Yet, as in the case of refined sugar, the bounty systems give them an advantage over our home refiners, and by leaving our markets open to them, foreigners do doubtless find it easy, at a sacrifice of price, to get rid of such of their surplus as at any time arises from over production. In both these ways our imports are increased in quantity and diminished in price, to the benefit of our own consumers, but quite the contrary for our producers. In another way, and that through the medium of the exports which we manufacture from foreign materials, diminished sales are necessarily followed by lesser requirements of raw produce. The following table will show how there has been an increased trade in foreign refined sugar, and how the imports of materials for our textile manufactures—bearing in mind the increased quantities required for the growing numbers of our own people—have certainly not been kept up, and have in some cases been actually less. An increase of 6 per cent. on the average of these fourteen years would have been required if only to keep the manufacture for both home use and export at the same rate as in 1872 :—

TABLE V.—*Showing the Quantities retained for use in this Country, of certain Foreign Articles which are exposed to the influence of Foreign Tariffs.*

[In millions to two decimals.]

	Sugar, Refined.	Cotton, Raw.	Flax.	Hemp.	Jute.	Silk, Raw.	Wool.
	cwts.	cwts.	cwts.	cwts.	cwts.	lbs.	lbs.
1872.....	1·70	10·14	2·03	0·94	3·28	4·09	161·27
'73.....	2·24	11·68	2·22	1·11	3·83	3·66	187·76
'74.....	2·58	11·68	2·40	1·11	3·55	3·18	190·10
'75.....	2·59	10·85	1·81	1·17	2·37	1·94	182·45
'76	2·60	11·46	1·47	0·99	2·90	2·96	207·21
'77.....	3·26	10·59	2·30	1·04	2·68	2·79	212·98
'78.....	3·10	10·66	1·60	1·07	3·23	2·33	193·54
'79.....	2·87	11·44	1·75	1·01	3·64	2·51	158·02
1880.....	2·91	12·53	1·98	0·98	3·55	2·72	208·92
'81.....	2·63	13·14	1·86	1·13	3·63	2·00	170·48
'82.....	2·64	13·56	2·05	1·09	4·50	2·46	211·16
'83.....	3·13	13·28	1·63	1·18	5·53	2·66	199·27
'84.....	4·04	13·37	1·66	1·06	3·42	4·14	231·47
'85.....	5·13	10·75	1·61	1·06	3·76	1·70	214·64
Average	2·96	11·79	1·88	1·07	3·56	2·80	194·94

(B.) *On Exports from United Kingdom.*

It is not so easy to show the exports of these materials when made up, because they assume a variety of shapes which cannot be well brought together. There is likewise a great mixture of

substances, the degree of which varies according to the fashion, but the following table of the principal articles may illustrate the rate of progress which has been maintained. The great increase in the quantity of silk stuffs, combined with the diminished import of the raw silk, is evidently due to a deterioration in the mixed fabrics.

TABLE VI.—*Showing the Quantities of Textile Manufactures Exported from this Country during the Years* 1872-86.

[In millions.]

	Cotton.		Jute.		Linen.		Silk.	Wool.	
	Yarn.	Piece Goods.	Yarn.	Piece Goods.	Yarn.	Piece Goods.	Brocaded Stuffs.	Yarn.	Fabrics.
	lbs.	yds.	lbs.	yds.	lbs.	yds.	yds.	lbs.	yds.
1872	212	3,538	13	84	31	245	4·4	40	413
'73	215	3,484	12	96	29	208	3·0	35	345
'74	221	3,607	16	113	27	195	4·0	35	327
'75	216	3,562	16	102	28	205	3·7	32	317
'76	233	3,669	17	121	22	163	3·9	31	282
'77	228	3,838	15	117	19	178	4·4	27	261
'78	251	3,619	12	123	18	161	4·8	31	258
'79	236	3,725	14	164	17	160	4·7	33	251
1880	216	4,496	17	183	16	165	6·2	26	262
'81	255	4,777	18	204	18	174	7·1	30	272
'82	238	4,349	22	212	18	176	7·7	32	265
'83	265	4,539	21	227	18	162	7·7	33	256
'84	271	4,417	27	243	20	155	6·8	39	290
'85	246	4,374	30	215	17	149	7·0	43	271
Average....	236	4,000	18	158	21	178	5·4	33	291

In comparing the year 1872 with 1885 and with the intervening years, it must be remembered that it was one of high prices, and therefore that the total value may not give an accurate illustration of the extent to which our exports have fallen off. This is not the case when, as in the above table, we are dealing with quantities, for which it may be taken as a fair standard by which to judge our progress; and it will be seen that whilst cotton as well as jute, both in yarn and piece goods, have greatly increased, other goods have not so. Nor are the quantities of the cotton piece goods to be altogether relied upon, for the rate of increase is out of proportion to that of the raw material imported. Messrs. Ellison give the consumption of raw cotton in 1872 as 1,181 million pounds, and that for last year at 1,298 millions, or only 10 per cent. more, whilst the exportation has risen from 3,538 million yards to 4,374 million, or 24 per cent. increase. Of course any two separate years can never be relied on as fairly comparable with each other in matters where the progression is not steady; but this is only one indication amongst many—pointing in the same direction—that the yard is not a fixed quantity. In length it must be the

same 36 inches, but in the breadth and substance of the material there is room for any amount of variation, and there can be no doubt that we are now shipping a much larger proportion of narrow and flimsy fabrics than we used to do.

Table I shows that between 1872 and 1885 our population has grown from 31·84 millions to 36·33, a gain of 14 per cent.; but this does not represent the increase we ought to maintain in our exports, if only to avoid retrogression, for during that period there has been a large migration of labourers from the agricultural districts to swell the numbers which have to depend greatly upon our export trade for the means of subsistence. It therefore ought to more than advance *pari passu* with our numbers, which so far as our textile manufactures are concerned it clearly has not done even in quantity, and as to value it has been wholly retrograde. This branch of our industries is the most important of all, for it furnishes fully 40, perhaps 50 per cent. of our whole exports.

The next in importance is that of our mineral products, embracing 18 to 20 per cent. of the whole, that in coals being about 4, and iron 12 per cent. The progress in these claims our attention next.

TABLE VII.—*Showing the Exports of Coal and Iron from* 1872 *to* 1885.

[In million tons to two decimals.]

	Coals.	Pig Iron.	Bar and Hoops, &c.	Railroad.	Tinned Plates.	Total of Iron.
1872	13·20	1·33	0·52	0·95	0·12	3·38
'73 ...	12·62	1·14	0·49	0·79	0·12	2·96
'74	13·93	0·78	0·43	0·79	0·12	2·49
'75 ...	14·54	0·95	0·48	0·55	0·14	2·46
'76 ...	16·30	0·91	0·42	0·41	0·13	2·22
'77	15·42	0·88	0·45	0·50	0·15	2·35
'78	15·49	0·92	0·42	0·44	0·16	2·30
'79 ...	16·44	1·22	0·42	0·46	0·20	2·88
1880	18·72	1·63	0·59	0·69	0·22	3·79
'81 ...	19·59	1·48	0·60	0·82	0·24	3·82
'82	20·93	1·76	0·66	0·94	0·27	4·35
'83	22·78	1·56	0·64	0·97	0·27	4·04
'84	23·36	1·27	0·64	0·73	0·29	3·50
'85 ...	23·77	0·96	0·60	0·71	0·30	3·13
Average	17·65	1·20	0·53	0·70	0·20	3·12

Of these figures it will be noted that iron on the whole has diminished. One marked exception, that of tin plates, proves the rule that foreign tariffs are adverse to our trade excepting where there is no manufacture in the other countries. Three-fourths of the exports from here go to the United States, where the tariff is inoperative, because they make none themselves. Coals and pig iron, both being very raw materials, are favoured, and therefore the least

influenced by the infliction of duty abroad, which is generally much lighter than on manufactured goods. They have both gone or increasing in quantity, thus making the falling off on the others more marked.

Very nearly the same results would be arrived at by detailing the progress of other articles, but as with the imports, those of which extracts have been made are sufficiently extensive to show in quantities as well as values the general tendency of our trade, and to establish the fact that it does not maintain its ground, even if the last year, which manifests so marked a decline, be left out of consideration. From these facts it is but reasonable to infer that the exclusion of our products from foreign markets except upon the onerous terms so many of them impose, is the result not of any disinclination on our part to continue and increase our supplies, but to the inclination shown by other nations generally to heighten their prices by the imposition of protective duties in favour of their own producers.

III.—*Progress of other Countries.*

Having thus set forth in various forms what relates to our own country, we may proceed to show the progress of others. In the following table the principal countries with which we trade have been thrown into groups, presenting not only a more compact but probably a more correct picture of the progress of the world than would be obtained by showing them separately. The period embraced is the same as before, excepting that 1885 is omitted, because the figures are not yet available. It would be impossible with these to analyse the accounts thoroughly, as has been done with our own; and it is necessary to be content with a simple statement of the imports and the exports, ranged in columns side by side, in two tables, one for foreign countries, the other for British possessions. The general reduction in values, which appears to have been going on all over the world, is here shown not so much in absolute falling off in amount, as it is with ourselves, as in retarding its increase. This might be made apparent particularly with the United States, were there space to extract the quantities of some of the chief articles. The particulars are taken from the foreign and colonial statistical abstracts issued by the Board of Trade here, which derives its information from documents transmitted from the several countries and colonies.

By way of comparison a table is added displaying the traffic both outwards and inwards of the United Kingdom with the same divisions of the trading world. In both tables the Mediterranean has been included with Southern Europe. The British table takes in the whole of our trade, that for foreign countries excludes those for which no information is attainable.

TABLE VIII.—*Showing the Value of Goods Imported into and Exported from Principal Foreign Countries in the Years* 1872-84.

[In million £ to two decimals.]

	Northern Euro e.		Central Europe.		Southern Europe.		United States.		China.		Total.	
	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
1872	87·62	57·24	492·75	347·32	140·82	126 47	130·54	99·10	21·32	23·84	873·05	653·97
'73	89·08	73·53	519·90	357·07	140·70	124·81	133·78	108·85	21·00	21·77	904·46	686·03
'74	95·50	84·34	517 18	359·63	149·15	129·34	118·21	131·93	20·38	21·13	894·42	726·37
'75	103·78	74·16	512·79	368·40	144·41	135·98	111·04	116·50	20·90	21·25	892·92	716·29
'76	95·14	78·19	550·81	357·06	139·59	144·73	95·99	123·19	20·94	24·09	902·47	727·26
'77	73·36	98·50	542·73	363·00	132·62	143 38	94·03	131·86	21·97	20·23	864·71	756·97
'78	108·99	109·74	554·00	362 28	129·95	132·47	91·05	144·94	21·09	20·01	905·08	769·44
79	106·00	111·18	589·40	363·88	152·91	161·27	92·87	145·73	22·96	20·18	964·14	802·24
80	115·03	93·60	577·08	384·22	160 45	166·02	139·16	171·66	22·96	22·55	1,014·68	838·05
81	100·24	95·27	584·70	400·24	167·58	172·97	133·89	184·15	25·45	19·80	1,021·86	872·48
'82	107·28	114·46	599·51	417·89	171·57	181·31	150·97	152·76	22·18	19·22	1,051·51	885·64
'83	108·52	116·92	615·67	412·37	176·25	179·46	150·66	167·55	20·61	19·67	1,071·71	895·97
'84	104·03	107·65	598·03	421·90	173·46	167·60	139·10	151·03	20·31	18·75	1,034·93	866·93
	1,294·57	1,214·78	7,248·55	4,915·31	1,979·46	1,965·81	1,581·29	1,829·25	282·07	272·49	12,385·94	10,197·64

BRITISH POSSESSIONS.

	East.		Australia.		Cape of Good Hope, &c.		North America.		West Indies.		Total.	
	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.
1872	51·53	71·07	33·83	33·80	7·39	5·89	24·61	18·41	5·93	6·34	123·29	135·51
'73	44·62	65·37	41·14	38·87	6·72	5·07	28·08	20·07	6·00	6·20	126·56	135·58
'74	47·53	64·32	44·44	42·12	7·20	5·93	28·24	20·14	6·00	6·75	133·41	139·26
'75	51·91	65·88	46·79	43·78	7·49	5·75	27·17	17·57	6·30	6·85	139·66	139·83
'76	52·03	68·07	44·99	42·57	7·33	4·92	20·92	18·24	6·37	7·15	131·64	140·95
'77	57·13	74·97	47·55	44·47	7·24	5·08	22·22	17·24	6·63	7·70	140·77	149·46
'78	66·03	75·65	49·94	43·43	8·79	4·80	20·82	17·70	6·64	6·31	152·22	147·89
'79	52·28	73·14	46·79	40·46	10·37	5·30	18·59	16·12	6·66	7·60	134·69	142·62
'80	60·04	77·65	44·50	48·36	10·83	5·96	19·47	19·48	7·03	7·49	141·87	158·94
'81	69·03	82·98	51·83	47·87	12·03	5·65	23·37	22·11	6·52	7·02	162·78	165·63
'82	67·65	90·50	63·34	50·06	12·30	5·88	26·62	22·74	6·98	8·40	176·89	177·58
'83	72·85	91·69	61·04	55·27	8·95	6·25	29·45	21·90	7·63	8·47	179·92	183·58
'84	75·93	96·20	63·48	54·16	7·48	5·85	25·60	20·15	7·81	7·89	180·30	184·25
	768·56	997·49	639·66	585·22	114·12	72·33	315·16	251·87	86·50	94·17	1,924·00	2,001·08

TABLE IX.—*Showing the Value of Goods Exported from and Imported into the United Kingdom to Foreign Countries and British Possessions in the Years* 1872-84.

I. FOREIGN COUNTRIES.

[In million £ to two decimals.]

	Northern Europe.		Central Europe.		Southern Europe.		United States.		China and Japan.		Other Countries.		Total.	
	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.
1873	17·18	37·07	109·76	88·48	38·75	51·62	45·91	54·66	9·02	13·64	28·36	29·85	248·98	275·32
'73	21·94	35·46	106·57	90·52	39·74	51·31	36·70	71·47	6·90	13·08	28·01	28·44	239·86	290·28
'74	22·15	36·27	99·83	97·82	34·99	42·56	32·24	73·90	6·22	11·76	24·31	25·61	219·74	287·92
'75	20·79	33·91	97·27	100·21	33·23	45·60	25·06	69·59	7·69	14·03	20·92	26·18	204·96	289·52
'76	17·83	32·46	92·22	98·85	31·78	44·84	20·23	75·90	6·91	15·60	17·66	23·17	186·63	290·82
'77	15·01	36·56	84·82	107·37	30·34	45·62	19·89	77·83	7·07	14·16	19·46	23·33	176·59	304·87
'78	15·94	31·58	83·71	101·01	30·74	35·11	17·53	89·15	6·86	14·23	18·71	19·75	173·49	290·83
'79	16·74	28·98	85·49	94·99	29·10	37·08	25·52	91·82	8·14	11·51	17·28	19·67	182·27	284·05
'80	18·67	32·38	87·82	106·47	30·71	39·75	37·95	107·08	9·33	12·37	20·41	20·66	204·89	318·71
'81	16·94	28·76	90·32	101·59	33·81	41·24	36·78	103·21	9·39	11·38	23·16	19·30	210·40	305·48
'82	16·44	38·16	94·02	109·39	32·78	44·94	38·71	88·35	7·30	10·66	25·07	22·09	214·32	313·59
'83	15·83	39·11	94·58	112·86	35·79	46·05	36·73	99·24	7·13	10·80	24·98	21·15	215·04	328·21
'84	15·66	32·13	93·08	106·14	33·20	41·13	32·74	86·28	7·01	10·80	25·97	17·73	207·66	294·21
	231·12	432·83	1,219·49	1,315·70	434·96	565·85	405·99	1,088·48	98·97	164·02	294·30	296·93	2,684·83	3,873·81

II. BRITISH POSSESSIONS.

	East Indies.		Australia.		Cape of Good Hope, &c.		North America.		West Indies.		Other Countries.		Total.	
	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.	Exports.	Imports.
1873	26·78	42·83	15·48	15·63	4·84	4·19	11·32	9·13	3·85	6·62	3·34	0·97	65·61	79·37
'73	29·82	39·74	19·23	17·26	5·43	4·60	9·37	11·73	3·74	6·68	3·56	1·00	71·15	81·01
'74	34·01	39·19	20·67	18·55	5·63	4·90	10·21	11·86	3·69	6·39	3·70	1·27	77·91	82·16
'75	33·04	39·65	21·22	20·56	6·20	5·09	9·68	10·21	3·41	7·53	3·11	1·38	76·66	84·42
'76	30·51	38·10	19·47	21·96	5·49	4·87	8·03	11·02	3·33	7·12	3·32	1·26	70·15	84·33
'77	34·38	42·23	21·50	21·73	5·40	5·04	8·26	12·04	3·27	7·13	2·94	1·38	75·75	89·55
'78	30·87	34·99	21·53	20·86	6·43	5·00	7·03	9·53	3·01	6·33	3·12	1·23	71·99	77·94
'79	29·22	32·80	17·96	21·96	7·22	5·19	6·12	10·44	3·05	7·29	2·94	1·26	66·51	78·94
'80	39·88	38·74	18·75	25·66	8·10	6·42	8·52	13·39	3·36	6·76	2·92	1·55	81·53	92·92
'81	38·93	40·01	23·98	26·98	8·40	5·92	9·31	11·30	3·01	5·92	3·05	1·41	86·68	91·54
'82	37·54	48·79	28·45	25·17	8·95	6·91	10·68	10·40	3·59	6·77	3·13	1·39	92·34	99·43
'83	40·56	47·29	26·84	25·94	5·93	6·63	10·11	12·28	3·90	5·14	3·06	1·40	90·40	98·68
84	39·68	42·84	26·80	28·31	5·53	7·05	9·69	11·04	3·52	5·21	3·08	1·36	88·30	95·81
	445·22	527·20	281·88	290·57	83·55	71·81	118·33	144·37	44·73	84·89	41·27	16·86	1,014·98	1,135·70

The contrast which this table presents to the preceding one is very marked. Recollecting that our exports form a part of their imports, it will be seen that whilst with a very slight exception in China, every division of the foreign countries has been taking more goods from the rest of the world, in each case we have supplied them with a lesser value than we did. On the total their increase of imports has been 16 per cent., our decrease of exports 17 per cent. After every allowance for the lower prices, this shows that we are to a great extent being shut out from their markets, have to submit to lesser returns, and certainly are not keeping pace with the growing demands each makes upon the industries of other countries than its own. Their exports too are enlarging, fully 33 per cent. in the thirteen years, but it would be difficult to distinguish how much of this is in manufactured goods, or in food supplies and raw materials. It proves, however, that they are gaining the capacity to minister to their own necessities without absorbing the whole of their productive power. Notwithstanding all this, we hear of as much depression in most other places as we do at home. Their tariffs have increased prices to themselves, and by stimulating production to an excess, lowered them for export, thus suffering on both sides, whilst ours is on one side only.

Our colonies present a brighter feature in the growth of our exports to them. The falling off to North America is perhaps more apparent than real, because in 1872 many goods passing through the United States were in that year not credited as they now are to the country of destination. That to the West Indies is accounted for by the severe depreciation in the sugar market, owing to the operation of foreign bounties crippling their power of purchasing. Yet they too are heavily taxing themselves, as well as injuring the mother country, by the high prices to consumers engendered by protective tariffs.

IV.—*Influence of Tariffs on Prices.*

The influence of tariff impositions upon prices has to be viewed by us in this country in two distinct aspects. In the one as they directly affect our own trade, and in the other as they operate in restraint of the trade of countries in which they are levied, and so prevent that which we might reasonably expect to carry on with them. It may be convenient at this stage to take the latter of these two first, leaving for the conclusion of this paper what more has to be said on the former beyond the remarks already made.

Some criticisms on a New Tariff Bill introduced into the House of Representatives, in the United States, on the 15th of last month which have just come to hand, may serve to explain how this matter is viewed by tariff reformers in that country.

" It evidently aims at the attainable rather than at that which " revenue reformers really desire. As an effort in the direction of " the attainable in legislation, it is wisely framed. Special effort " has doubtless been made to harmonise conflicting views and to " avoid any subject of taxation which would produce irreconcilable " antagonisms. The free list proposed in the Bill is very important, " as far as it goes, and it goes as far perhaps as it was safe to " attempt. The leading articles placed on the free list are lumber, " with slight exceptions; salt in bags and other packages and in " bulk; hemp, jute and jute butts; iron, copper, and lead ores; coal " and coke, and sundry dye stuffs and other raw materials. These " articles will reduce the Government's revenue about 5 millions " of dollars, and the burden upon the taxpayers and consumers of " the country at least 50 millions of dollars. If nothing else were " contained in the Bill, the placing of these articles on the free list " would constitute one of the greatest tax-reduction and revenue " reforms that has passed since the war began. The Bill also " reduces tariffs on manufactured goods, cottons, woollens, metals, " pottery, &c., to the extent of about 5 millions of dollars. These " reductions are consequent upon the enlargement of the free list " of raw materials. There is a reduction on sugar amounting to " 20 per cent., or about 10 millions of dollars, making a net reduction " by the whole Bill of Government revenues to the extent of " 20 millions of dollars, and a reduction of the annual burdens of " taxation to the consumers of the articles affected to the extent of " at least 100 millions of dollars.

" The tax derived from tin plates is all revenue—all goes into " the treasury, and amounts to 5 millions of dollars a year. There " is no tin plate made in this country. The protectionists favour " an increase of the tax of 35 per cent. *ad valorem* to about 75 per " cent., so as to exclude practically foreign tin plates, and force a " hothouse production in this country, regardless to the cost to the " people who use tin. This would deprive the Government of " 5 millions of dollars of revenue and double the price of tin; that " is, would impose a burden on the consumers of tin in this country " equal to 20 millions of dollars. This article furnishes a fair " sample of the principles of a protective tariff."

There are here three classes of articles proposed to be dealt with, the one at present yielding 1 million £ to the revenue, which it is proposed to liberate altogether from duty, and so remove a burden from the taxpayers of 10 million £; thus inferring that the imported articles were but one-tenth of the consumption, which must be largely produced in the country. Another class on which the reduction of duty is by about a third of the present rates, and sugar to be reduced 20 per cent. These together are to relieve

consumers of another 10 million £. The whole loss to the Government of 4 million £ is taken to represent a gain to the consumers of 20 million £, or five times the amount. But if these reductions only would ensure so great a gain, the entire removal would be three or four times as beneficent, and amount to some 40 to 50 million £ more, making the whole relief arising from the abolition of 14 million £ revenue at least 70 million £. Now as the whole amount of import duties collected in the United States are about 40 million £ a-year, their abolition would in these proportions be equivalent to a reduction of cost to the consumer of five times as much, or 200 millions. This seems an enormous amount, and it is scarcely likely that the advantage would be so great, or if it were that the consumer would obtain the whole benefit; but whatever they failed to secure would be so much to the good for the producer of the raw materials or the industries concerned in their manufacture. All these are articles with which either our colonies or the mother country are interested, and it is not unreasonable to suppose that they would find openings for increased trading.

(A.) *United States.*

To ascertain to what extent any one nation suffers from the enhanced prices consumers have to submit to by reason of protective duties, would require a knowledge of the quantities of all the articles in the tariff which are produced at home as well as imported from abroad, and a computation of the additional prices at which the articles are sold. To estimate the real amount all the world over would involve the like calculation for each country. It was intended in this paper to have attempted to do this more closely than has been possible, from the failure to obtain either complete or precise information. Some idea, however, may be gained from the records of a few articles, the particulars of which are within reach, and perhaps none will furnish a better illustration or grounds for calculation than those relating to iron in the United States. These are published at length in the records of the American Iron and Steel Association, supplemented by the information contained in the annual report of the British Iron Trade Association, for both of which I am indebted to the Secretary, Mr. J. I. Jeans, a valued member of the Council of our own Society.

Table X gives the production and importation of pig iron in the United States for twenty-one years ending in 1884, the yearly and average price of Philadelphia iron compared with that of Scotch pigs. Working out the whole quantity for each year shows us, in the difference between the two rates of price, by how much cheaper it would have been, even when the cost of transport is added, to

purchase in this country than to make in that. During the first six of these years the import duty was 25*s.* per ton, and from thence to the present time 29*s.* 2*d.*, but the total quantity imported being only one-twelfth of the native production, the whole revenue must have been but small, and the chief effect of its imposition has been to increase the cost to the consumer. Thus the exchequer secured a benefit of some 5 or 6 million £, and the smelters some 60 or 70 million £. The whole difference of 187 million £ must be lessened by the duty received and also by the expense which carriage would have entailed had all been brought over sea. If this be set at 20*s.* per ton for freight and charges, a high estimate, the two will not come together to more than 60 million £, leaving above 125 million £ as the burden entailed by the preference given to native over foreign production.

TABLE X.—*Showing the Quantity of Pig Iron Produced in and Imported into the United States of America; the Current Prices of the same at Philadelphia and Scotland, with the Total Value computed out, and the difference yielded by the two Rates.*

[The quantities and values in millions of tons and pounds, and the prices in £ sterling, to two places of decimals.]

Years.	Quantities.		Prices.		Values of Prices at		Difference.
	Production.	Importation.	Philadelphia.	Scotland.	Philadelphia.	Scotland.	
1864....	1·01	0·10	*12·24*	*2·87*	13·65	3·09	10·56
'65....	0·83	0·04	*9·60*	*2·74*	8·35	2·38	5·97
'66....	1·19	0·10	*9·76*	*3·02*	12·59	3·90	8·69
'67....	1·29	0·11	*9·19*	*2·68*	12·87	3·75	9·12
'68....	1·42	0·11	*8·18*	*2·63*	12·52	4·01	8·51
'69....	1·70	0·14	*8·47*	*2·66*	15·58	4·90	10·68
1870....	1·67	0·15	*7·56*	*2·72*	13·76	4·95	8·81
'71....	1·69	0·18	*13·56*	*2·95*	25·35	5·52	19·83
'72....	2·53	0·25	*10·19*	*5·01*	28·32	13·93	14·39
'73....	2·54	0·22	*8·91*	*5·86*	24·59	5·17	9·42
'74....	2·41	0·09	*6·27*	*4·38*	15·67	10·95	4·72
'75....	2·02	0·06	*5·61*	*3·29*	11·67	6·84	4·83
'76....	1·87	0·08	*4·63*	*2·93*	9·03	5·71	3·32
'77....	2·05	0·07	*3·93*	*2·72*	8·33	5·77	2·56
'78....	2·30	0·06	*3·67*	*2·42*	8·73	5·71	3·02
'79....	2·74	0·09	*4·47*	*2·35*	12·45	6·65	5·80
1880....	3·84	0·75	*5·94*	*2·73*	27·26	12·53	14·73
'81....	4·14	0·42	*5·23*	*2·46*	23·85	11·22	12·63
'82....	4·62	0·50	*5·37*	*2·47*	27·49	18·64	8·85
'83....	4·60	0·43	*4·66*	*2·34*	23·44	11·77	11·67
'84....	4·10	0·29	*4·15*	*2·11*	18·22	9·26	8·96
	50·56	4·24	Average *7·22*	Average *3·01*	353·72	166·65	187·07

An inquiry in the same manner into the supply of rails will show a still greater charge upon those who lay down the lines without which the agricultural products of the country could not have been brought to the seaports for shipment. The difference here has been for eighteen years, 179 million £; from which deduct perhaps 10 millions of duty received upon the imports, and say 19 millions for carriage, &c., there remains 150 million £ as the extra cost to the railroads, because they have not been made with the rails which could have been supplied them from this side of the Atlantic.

TABLE XI.—*Similar Table, showing Consumption of Rails Produced in, and Imported into the United States from* 1867 *to* 1884.

Years.	Quantities.		Prices.		Values at Prices.		Difference.
	Produced.	Imported.	American.	English.	American	English.	
1867.....	0·41	0·14	*34·58*	*8·37*	19·02	4·60	14·42
'68.....	0·45	0·22	*33·01*	*7·99*	22·12	5·35	16·77
'69.....	0·53	0·28	*27·55*	*8·15*	22·32	6·60	15·72
1870.....	0·55	0·36	*22·24*	*8·27*	20·24	7·53	12·71
'71	0·69	0·51	*21·35*	*8·24*	25·62	9·89	15·73
'72	0·89	0·47	*23·33*	*8·01*	31·73	10·89	20·84
'73.....	0·79	0·23	*25·10*	*10·82*	25·60	11·04	14·56
'74.....	0·65	0·10	*19·63*	*9·79*	14·78	7·34	7·44
'75.....	0·70	0·02	*14·33*	*7·37*	10·32	5·31	5·01
'76	0·79	—	*12·34*	*6·38*	9·75	5·04	4·71
'77.....	0·68	—	*9·47*	*6·03*	6·44	4·10	2·34
'78.....	0·79	—	*8·30*	*5·47*	6·95	3·32	3·63
'79.....	0·99	0·04	*10·05*	*4·88*	10·35	5·03	5·32
1880.....	1·30	0·26	*14·06*	*6·17*	21·93	9·63	12·30
'81.....	1·65	0·35	*12·73*	*5·63*	25·46	11·26	14·20
'82.....	1·50	0·20	*10·10*	*5·72*	18·18	9·72	8·46
'83.....	1·22	0·04	*7·97*	*5·72*	10·04	6·96	3·08
'84.....	1·02	—	*6·41*	*4·79*	6·54	4·89	1·65
Total	15·60	3·22	Average *17·40*	Average *7·10*	307·39	128·50	178·89

The first of these latter tables would seem to show that pig iron must for a series of years have cost to America fully 2*l.* more than it could have been obtained for by importation, and rails some 6*l.* or 7*l.* more per ton. The same mode of calculation would show that other descriptions of manufactured iron must have borne an equally heavy burden. Of course at the present time there is not so great a difference, as will be seen in the following statement of production and importation.

TABLE XII.—*Showing the Totals of the several Descriptions of Iron Consumed in the United States in Five Years*, 1880-84.

	Consumption.	Prices.		Value at		Difference.
		United States.	British.	American.	British.	
	Mln. tons.	£	£	Mln. £	Mln. £	Mln. £
Pig iron	23·00	5·91	2·41	135·93	55·43	80·50
Rails	7·55	10·03	5·54	75·76	41·83	33·93
Other rolled	5·27	11·41	6·11	60·33	32·20	28·13
Steel ingots, &c.	7·80	—	16·06	—	—	—
Tin plates	1·11	—	17·80	—	—	—

At the present time both pig and rolled iron are more than twice as dear in America as they are in England, which is considerably more than the duty and cost of conveyance would amount to. There is consequently a considerable exportation from hence going on, which a rise in price on this side, or a fall on the other, would check; but it is more in pig iron than in manufactured, and therefore employs less labour here than would be the case were the markets free. One branch of the trade, that in tin plates, has hitherto been almost wholly in our hands, simply because the Americans have not yet undertaken to make them. It is fostered too by the low freights at present ruling, for they can be carried to New York from Cardiff for only half the carriage which the railways charge for bringing them to London. Of our whole exports last year, three-fourths were sent to the States. On this subject the American Iron and Steel Association thus writes in its last report: "That is a trade which should be in the hands of "Americans, and it is disgraceful in the extreme that we permit "Great Britain to monopolise it without making strenuous efforts "to secure at least some part of it." . . . "In the fourteen years "[1871-84] our total imports of tin plates were 2,120,833 net tons, "valued at 189,986,305 dollars as invoiced. This is by no means "the cost to the consumer, who has also paid ocean freight, "insurance commissions, importer's profits, and perhaps jobber's "profit. Is this not a branch of trade worth striving for? Is "it not of sufficient importance for the Government to recognise, "and to endeavour to secure for the people of our own country?"

This means that an article of which the average cost as exported from hence last year was but 15*s.* 8*d.* per cwt., and which is saddled with a duty there of 9*s.* 8*d.*, besides all the expense of getting it to that market, cannot be supplanted by home manufacture without the further interference of Government to protect it against competition. Hitherto this country has had almost a complete monopoly of this

manufacture, yet we are now selling the article at a price which yields no profit, whilst the extension of its use is retarded by the exorbitant imposts to which it is subjected. Should an additional charge be laid upon it, either rival American manufactories will be set on foot to the still further disadvantage of the consumers, or a country which has cheap wood and coarse crockery will continue to substitute these for the more useful material. Can anything demonstrate more clearly than does this typical instance the effect of fiscal regulations in heightening the cost to the consumer, whilst lowering the price to the producer, and thus restricting the healthy interchange which should take place between those who possess advantages on the one side which the other cannot obtain without subverting the natural laws on which commercial activity depends?

It is not so easy to calculate the influence of her protective system upon the cotton manufactures of the United States. The variety of the fabrics produced, and the uncertainty as to correspondence of weight or quality per yard, and hence of the real divergence of price, prevents the close attention to the details which has been bestowed on those of iron, neither would it be advisable to devote so much time to the investigation. Briefly, however, it may be stated that the United States has, on the average of the last ten years, grown 5·52 million bales of 400 lbs. each, of which she has retained for her own consumption 1·74 millions, or as nearly as possible one-third, exporting to Great Britain 2·38 millions, and the remainder to the rest of the world. She has at the same time imported manufactures to the value of 5·62 million £, and exported 2·01 million £ abroad per annum, leaving 3,600,000*l.* as her annual expenditure under this head. But there are so many articles into the composition of which cotton enters, that it is impossible to ascertain accurately what proportion of her trade is in this material, or what relation it bears to that which is manufactured for her own use. Great Britain has averaged an export of 71·81 million £, with an import of only 2·12 million £, leaving her a recipient of 70 million £. To produce her exports, and so much as has been consumed by her own people, she has absorbed yearly 3·39 million bales, or twice as much as the United States. Now as that country has a population of 50 millions, as against 35 millions in the United Kingdom, and there is no reason to suppose that they wear out less cotton clothing than our own people, it is evident that she must really consume rather more raw cotton than she originally retained for her own use. If then the consumption of raw material here be the same as there, we should require 1·20 million bales for our own use, leaving some 2 millions for export manufacture. Another method of estimating this quantity is to assume,

as used to be the Manchester rule, that five yards of fabric employed one pound of cotton. At this rate our exports would require about 2·65 million bales, but there is reason to believe that of late years each pound weight of cotton has been spun and woven into more yards than formerly. If so, there is so near an approximation by the two methods as to fix the quantity used in manufacturing our exports at 2·25 million bales, or 25 per cent. more than the United States uses up for its own clothing, and valuing our exports at 72 million £, we might for 54 millions provide the United States with what she manufactures for herself. I have no means of ascertaining how near this may come to any estimate that may have been made in America of the sum expended in that country on cotton clothing. Neither without an intimate knowledge of the precise description of fabrics which are made, to show the complicated scale of duties they would have to pay on admission there, is it possible to affirm how much per cent. this would add to the charges upon the consumer. It is probable however that this would be fully the 35 per cent. which appears to be leviable on a number of distinct descriptions. Now if this protection be necessary for keeping the American mills and looms running, and if in spite of these some 10 per cent. of her present consumption comes from abroad, more than one half of which we supply, it is not unfair to assume that the United States taxes her own people not far from 20 millions, not for the benefit of her revenue, but for the pleasure of making rather than buying the cotton clothes the people wear. That is she would do so if our present depressed prices continued, but with so large an addition to our customers, if only for a portion of this amount, our prices would rise somewhat; whilst those of the spinners and weavers there would decline until they became equal to ours.

The extremely protective character of the United States' tariff is seen in the fact that three-fourths to four-fifths in value belong to goods which come in competition with those of a like character produced internally. The total value of the imports for the last ten years has averaged 120 millions per annum, and the amount of duties received to 35 millions. The value for 1884 is given as 139 million £, and the revenue therefrom at 40 millions, which would indicate a larger proportion of free articles than before; the average duty is about 33 per cent. on the value of the whole. If some 30 millions of duty be levied on 90 millions of goods which come in competition with internal produce or manufactures, and the proportion of the foreign to the home goods, which by reason of the duty on the foreign become enhanced in price, be anything like it is in the cases of iron and cotton goods, then the burden laid upon the general mass of the consumers in favour of

the producer, becomes for the ten years past no less a sum than 150 million £ annually, substantially influencing the retail price, thereby checking consumption, and so materially affecting both the home and the foreign trade. It is more important to prove that such results do follow upon hostile tariffs to the country which makes them, than it is to show the exact amount by which they adversely affect the consumers, or those who in other lands would willingly become their suppliers.

(B.) *Other Foreign Countries.*

Having gone so minutely into the circumstances of the United States' tariff, it will be unnecessary to deal with those of other nations in so detailed a manner, for the same principles underlie all those which are framed for the purpose of excluding competition, particularly in the highest class of articles, which requiring the greatest amount of labour, yield the highest profits. A few illustrations will serve to show this :—

France.

A constant article of export from this country to France is coal, of which we furnish about one-half of her whole import. On this she levies a duty of 11½*d.* per ton, which at the present price on shipment here is about 10 per cent., and we now send her double what we did in 1872. On pig iron she charges 7¼*d.*, but on bars, rails, and hoops, all of which we could furnish her with, three and four times as much, consequently of our exports to her, which altogether only reached in 1882 to 215,000 tons, three-fourths are in pigs. On cotton yarns her duties range from 6*s.* to 6*l.* per cwt., according to the fineness. In 1873 we sent her 4,600,000 lbs., valued at 550,000*l.*, or 2*s.* 5*d.* per lb.; last year she took 14,800,000 lbs., of which the value was but 832,000*l.*, or 1*s.* 1*d.*, giving evidence that our sales were of the coarser kind, which her tariff is framed to favour. Of woollen cloths and stuffs we took in 1884 42 million yards at an average price of nearly 2*s.* per yard, and sent 47 millions at less than 1*s.* 6*d.*; and the disproportion in price would have been greater but that the latter included 6 million yards of fine cloth, in which we have the superiority, at nearly 4*s.* per yard. The price given for the imports also covered the cost of bringing over, which the exports did not. It is clear therefore that it is the common goods we mostly exchange for her superior ones.

Belgium.

To Belgium, where the duties on the higher kinds especially are more favourable for importations than France, our exports of textiles show a rapid and continuous increase :—

[In millions to two decimals.]

	1872.		1884.	
		£		£
Cotton yarn ..... lbs.	2·16	0·22	13·43	0·77
Woollen „ ..... „	0·72	0·11	2·25	0·22
Cotton piece goods..... yards	12·05	0·33	59·89	0·87
Woollen „ ..... „	8·47	0·80	17·22	1·25

Here although prices have not kept pace with quantities, the great increase in trade is the result of less onerous taxation. It has not been confined to these articles, for notwithstanding the fall in prices, the whole export of British goods has risen from 6·50 million £ value in 1872, to 8·50 million £ in 1884; whilst that of France has fallen in the same time from 41·80 million £ to 37·44 million £.

Germany.

With the German empire, under the influence of her sugar bounties, our imports have risen from 0·34 million cwt. at 0·45 million £ in 1872, to 7·76 million cwt., at 5·80 million £ in 1884. The magnitude of this progress may be shown in a comparison with that of our imports from the whole of our East and West Indian possessions together, which have sunk from 5·05 million cwt., 6·66 million £, in 1872, to 4·92 million cwt., 3·99 million £, in 1884. In contrast to this extension of our imports from her, may be placed our exports of textiles to her:—

[In millions to two decimals.]

	1872.		1884.	
		£		£
Cotton yarn ..... lbs.	46·61	3·93	39·47	2·17
Woollen „ ..... „	19·27	2·93	17·95	1·71
Cotton piece goods ..... yards	94·23	2·04	48·78	0·82
Woollen „ ..... „	92·43	8·73	9·65	0·88

Our whole exports to this empire were valued at 31·62 million £ in 1872, and 18·73 million £ in 1884, whilst our imports had risen during the same period from 19·23 million £ to 23·62 million £.

Examples like these might be drawn from other countries and different goods. But it is time to turn to one or more of our own possessions abroad.

(c.) *British Possessions.*

India.

Of our great empire in the east, it may be sufficient to remark that all our yarns, tissues, and metals may be imported free of duty. The British exports, which in 1872 were valued at 18·47 million £,

rose by 1884 to 30·58 million £. All our cottons, linens, and woollens almost exactly doubled, whilst our iron increased five-fold. In contrast to this we may place—

Canada.

The exports of British produce and manufacture to the Dominion were 9·64 million £ in 1872, and but 8·10 million £ in 1884. Here the tariff is avowedly protective if not prohibitive, it being the object of the National Policy to foster every description of home manufacture, and only to admit free or at insignificant rates such articles as cannot enter into competition with native productions, or are in such crude conditions as to be subject to manipulation after importation to fit them for use.

The tariff of 1884 contains 657 separate enumerations, many of them subdivided, and by a supplement of last year the number was raised to 749. It includes every conceivable method of rating and exemption, and in many cases there are two duties on the same article, a specific and an *ad valorem* charge. It also bears on the imports from the mother country with greater severity than it does on those from the United States; for in a speech of the Finance Minister in the session of 1885, it is stated that from 1874 to 1879 the percentage paid on the imports from Great Britain was 16 per cent., on those from United States 9·45, but from 1879 to 1884 it was 19·37 per cent. on British goods, and 14·86 on American. This does not arise from higher rates on British, but from the American imports consisting of those goods to which greater favour is shown; nevertheless it is in contravention of filial or brotherly treatment, and must manifestly act on the prices paid by the consumers, and in restraint of trade from hence. I can bear witness from personal knowledge of the heavy burden it puts upon the colonists, much more than is included in the per-centage named—because of its absolutely shutting out many articles that might be sent—excepting when the stimulus of high profits on manufacture had led to over production, and the consumers for a time obtained cheap goods, because they were sold at "starvation "prices" for the manufacturer.

Australasia.

New Zealand is pursuing a like policy to Canada, but has increased so largely in population, and raised so much money on loans, that this country has been able to raise our exports from 2·66 to 3·71 million £. Her tariff too contains some 800 or 900 enumerations either for duty or free. Many ratings are 25 per cent., though 15 is the prevailing charge.

New South Wales and Victoria.

These two contiguous possessions are opposed in their policy, the one being largely free, the other levying heavy rates. The results, so far as our trade to them is concerned, being that New South Wales has risen from 3·57 to 8·40 million £, Victoria from 5·94 to 6·66 million £. The population of the two now differs but slightly, and it is not difficult to see which is likely to be the best supporter of trade with us at home.

The particulars thus given would suffice, but that a curious example afforded of the cost sometimes entailed by an effort to support local manufacture instead of imported articles, is to be found in a recent report of the audit commissioners in—

South Australia.

It appears that some 12,750 tons of iron pipes were required for Government use, which might have been obtained in London for 4*l.* 5*s.* per ton, amounting to 54,000*l.*, and imported complete for 82,000*l.* To encourage native industry, it was necessary to import from England the cast iron and the coke at a cost of 49,000*l.*, thus retaining in the colony 33,000*l.*, but that in order to do this an extra cost of 38,000*l.* would be incurred, thus showing a loss of 46 per cent. upon the whole outlay if imported, but one of 115 per cent. upon the saving in the first instance. This scarcely bears upon the tariff question altogether, but is a fair sample of the many extra losses incident to the fostering of one branch of local industry at the expense of the whole community. It furnishes a most striking instance of how prices are influenced and trade affected by fiscal regulations, and the consequences they entail. It forms an apt conclusion to this branch of the subject in hand.

V.—*Operation of Tariffs in Restraint of Trade.*

(A.) *Foreign.*

A full consideration of the instances already cited, and the many more which might be easily adduced, leaves no room for doubting that protective duties do operate in restraint of trade. This indeed is the very object for which they are imposed. The shutting out of goods produced in countries where they can be cheaply raised or manufactured, in order that home growers or makers may be enabled to compete on favourable terms, or to grow rich upon the profits secured. The effects to which they give rise are essentially different in old and overpopulated countries, where the increase of numbers presses hardly upon the means of subsistence, and in new ones, where the inhabitants are few and food is abundant. In the one by opening up new sources of occupation,

where labour being abundant, wages are low, they allow of greater numbers being maintained than would be possible were the consumer's money to be largely spent abroad; and where the materials upon which industry is exercised are of home growth, it is quite a legitimate occupation to carry on the processes by which these are fitted for use, up to the final production of the articles for which there is a demand. But in these cases the inevitable tendency is to over production, prices fall, and masses suffer for want of employment. These in turn become a tax upon the resources of the country, they eat up the produce of other men's labour, and thus the whole community becomes involved in the general results. Isolation from the outer world, whether it be from ignorant prejudice as in China, or from interested motives as in some of the continental nations, reduces the artisans to mere machines, to be worked as cheaply as possible, to increase in numbers as fast as poor diet and insalubrious surroundings will permit, and to be retarded in moral and intellectual improvement. It leads also to the employment of labour in the cultivation of refractory soils, and the working up of inferior materials, so that the products of that labour are far less than they would be if exercised under more favourable conditions. Whilst a sufficient occupation of time and strength even to the eating of bread "in the sweat of thy face," is not only the lot of fallen humanity, but a merciful provision for the necessities of our nature; the whole absorption of the physical powers in the mere gaining of that bread, interferes most sadly with the moral and spiritual progress which every lover of his species must desire. Again, for poor countries where capital is scarce, and can only be drawn from abroad by the offers of high interest or the promise of great returns, the resources of the country are drained from it, and others grow rich at its expense. It is under conditions such as these that socialistic tendencies are strengthened, the real advancement of the people is prevented, first discontent with their own lot and then envy at the lot of others increases, and ultimately the fabric of society becomes undermined, so that its overthrow is but a matter of time and opportunity. France has been led to an unnatural restriction of her population, and a greed for territorial possessions, where a partial civilisation has produced a considerable degree of material advancement by the natives themselves, who, if left unmolested, would rapidly grow as customers for the products of art and manufacture elsewhere. Germany, alarmed at the narrow bounds within which her people are confined, and desirous of emulating Britain in the extension of her settlements, is adopting the more sensible course of striving to secure possessions and outlets for her trade abroad, which so long as they do not entrench upon

the rights we have already acquired, or set at nought claims of justice and humanity on the part of the natives, ought to have our sympathy rather than our envy. In both these instances no protective tariffs ought to be necessary, for the manufactures they foster must be unhealthy. They tend to the concentration of undue numbers at the manufacturing centres, and frustrate the natural effort of increasing population to spread abroad to lands where healthier occupations and more abundant means would permit of greater comfort for even the increasing families which would be the natural result. More extended trade with other nations allowed to flow in its natural course would have peopled many places now uninhabited, have promoted the utilisation of many home resources, and have prevented the intense evils now manifested in the trade depression which they as well as we are suffering.

In newer countries such as the United States and our own Canadian dominion, the influence of protective tariffs has taken a different shape. In these they promote the prosperity for a time of one portion of the community at the expense of the other. The enormous increase to the price of the various manufactured goods which the consumers have had to pay, is just so much burden laid upon the shoulders of those engaged in developing the natural facilities of the places in which they have settled for supplying the wants of other countries. They really constitute a tax upon the products there raised for their own use or for sale. Every pound needlessly expended on the rails laid down to convey the agricultural or mineral products of the interior to the seaboard from whence they may be exported, or to the towns where they may be consumed; entails either a permanent increase in the cost of such conveyance, or a destruction of the capital by which the means of transport have been created. Every penny now added to the cost of clothing, utensils, and other necessaries used by the husbandman, the miner, or the woodcutter, also adds to the cost of the food they raise and the substances they make useful to others. It at the same time, by crippling trade with those who elsewhere are able to produce these goods more cheaply, also limits their powers of becoming purchasers. Surely true economy consists in a free exchange of that which each can produce for the use of others at the least expenditure of labour and capital. Again, all new countries are short of capital, which means not so much in the present day an actual lack of money, as an absence of the credit which stands in its place. Operations which in England entail a charge for the use of large credits, based in reality upon small amounts of actual gold or silver, of 2, 3, or 4 per cent., cannot be conducted the other side of the Atlantic for less than

double or treble that rate of interest. It would be both interesting and surprising could we ascertain how much of the produce of America shipped to this country, and how much of the yearly dividends drawn from there as well as Canada, are in truth so much drained from thence, to support the manufactories which produce there instead of here, but for the benefit of capitalists providing the money on this side. The boundless natural resources of the northern American continent, which in that portion of it which separated itself from us in the last century; have been thus far so utilised as to conceal the tribute she has been paying to this country, because she will not buy in the cheapest market. The ease with which Canada has borrowed money here, on the faith, fully justified by the promise of her future expansion, has in like manner blinded her to the wasteful course of producing dearly what she might procure cheaply. Both have lost sight of their true interests in fostering expensive industries, and fail to see how much more rapid might have been their real progress had they been content to take from us what we could have given them at less cost, in exchange for that which they can create with less expense than we. It is not unnatural for America to think that the cotton she grows may best be worked up without crossing the seas, nor for Canada to wish that her wheat should be consumed by denizens of her own towns. The fault has been in seeking to hasten the time when both these expectations must be fulfilled, by enhancing the cost of the products they have to sell, and depressing those which they yet refuse to take.

(B.) *British.*

In reviewing the progress of our own export trade, we have to start with the fact that on the showing of Table II the increase in the quantity since 1872 is almost exactly 25 per cent., but then according to the census tables of 1881 the industrial class, in which are included all those whose occupations enable us to export at all, have increased to the same extent in but ten of the intervening years. Assuming, as we ought to do, that such an addition to our workers should be able to keep pace in their productive powers employed for the maintenance of our trade, as well as in those devoted to supplying home wants, we have not held our ground in manufacturing for foreign nations and colonial possessions. But when it is considered that the estimate of quantity does not, as before explained, really represent so great an addition, and that improved machinery and means of transport should enable each individual to produce more than before, it is evident that our manufacturing supremacy has not been maintained in the markets of the world. We have not sold as much as we ought to have

done, whilst other nations have done more, as shown by the progressive increases in Table VIII. This view is also borne out by the figures in Tables VI and VII. There can be no dispute that our manufacturers are ready and able to provide more of their wares for sale abroad than they can find entrance for. Can there be any doubt that the protective duties levied in foreign and colonial ports bar the way?

Another consideration here presents itself. In the interval we are dealing with there has been a large addition to the imports of manufactured goods to supplant those of home production for the consumption of our people; if we add together the plus and minus figures in Table III, which show the successive changes in the quantities of manufactured and miscellaneous, they will be seen to amount to 20·34*l.*, which is a fair set off from the 65·57*l.* of increase in the British exports of Table II. It is true that all the articles included as miscellaneous are not manufactured, although the bulk of them are so; but then the increases in food imports include year by year more articles on the preparation of which more or less foreign labour has been bestowed. This increased participation by us in the products of foreign industry must either have been absorbed by more lavish consumption, or have rendered useless so much of our home productive power. The year 1872, with which we start, was notoriously one of profuse expenditure, and there is every reason to believe that there is now a great diminution in spending power. Hence it follows that the proportion in which our power to produce, and our success in selling have diverged, is larger than would at first sight appear. Can there be any question that the protective tariffs with which we are everywhere met, have not only shut us out from the sale of our own goods, but also in so doing stimulated that over production in other countries which has enabled them to pour into our markets much of their surplus stocks?

In these remarks we have been dealing with quantities only, although expressing them in money terms, as previously explained. When we deal with prices the question assumes a still more unfavourable aspect. Referring again to Table II, the valuation of our whole exports of British and Irish produce is seen to be 43·23*l.* less than it was in 1872, but that allowing for the increase in quantity, 108·80*l.* represents the real loss in price. Against this there is of course to be set the gain on the lower prices given for the raw materials so far as they were imported from abroad, but adding these for textiles and metals during the successive years in Table III, we get 43·03*l.*, including the saving on the materials used up in manufactures for home use as well as those for export. The whole saving is but 89·15*l.*, shared amongst all classes, whilst the

loss would fall on the manufacturers for export only. Viewed in this light prices have sustained a diminution of 108·80*l.* on 256·26*l.*, or more than 40 per cent., whilst the actual amount received on the enlarged quantities if divided amongst the census numbers in the industrial class, even supposing these not to have increased since 1881, would average 50*l.* per head for 1872, and no more than 33*l.* for 1885.

Yet this does not sum up the whole sacrifice; by reason of restricted trade, freights have had to be lowered, commissions and brokerages are less, and as many of our exports go into the hands of British merchants in the places to which they are sent, there is doubtless a very considerable diminution of profits to be realised in their sale. There are further indirect or consequent losses in various ways. Take for instance what happened in 1879, when our iron trade was so depressed. The low prices prevailing here, conjoined with the high prices to which a rapid railroad extension in the States had attained there, permitted for a while the admission of our iron into America in spite of the heavy duties to which it was subject. This stimulated production of greater quantities at home, which have not yet been altogether reduced. Prices which had risen, soon fell again, until now we have the lowest prices known for at least a quarter of a century. A superabundance of the material and the cheap price at which it could be obtained, encouraged an undue amount of shipbuilding, with the natural result, such competition for freights as to reduce the prices ridiculously low, and so another of our important industries suffers. Vessels have actually paid for the privilege of loading with corn in America to save the greater expense of taking in ballast, and at the best of times the absence of free interchange of goods occasioned by the forbidding influence of heavy duties, oftentimes throws the cost of a double voyage upon the goods carried in one way, and so in busy times heightens prices. With all these results from tariffs abroad, what wonder that trade is depressed? Until one at least of the causes is removed from which that depreciation results, what hope is there of recovery?

VI.—*Recapitulation.*

Reviewing the successive stages of the inquiry we have been pursuing, it is quite clear that our home export trade, whilst until recently increasing in volume, has sadly diminished in the values it has realised, and that this diminution has not been compensated for by the reduced prices of the imported raw materials or even of these and the food we have imported put together. Conjoined with this there has been not only the natural increase in the body of workers this trade has to sustain, but an addition to the number

by many withdrawn from other occupations; so that the amount coming into the country for each head of our industrial population as the recompense of its employment in producing for export has diminished by one-third, the diminution in last year being the greatest we have ever sustained. It seems equally clear that it is very much to the influence of hostile tariffs on the part alike of our own colonies and foreign nations that we are unable to sell our goods at the prices we might otherwise obtain; that we are now being affected in the extent as well as the value of our trade; and that concurrently with this, the large supplies from abroad of many articles which enter into competition with those of our own production must be seriously interfering with the manufacture for home use.

There would seem to be little room for doubting that other nations are heavily burdening their own people by the expenditure of labour and the employment of capital in the costly production of that which they might cheaply purchase—and that this want of obedience to economic teaching is shared in by our own possessions. That though in countries in which labour is abundant this serves to provide employment for growing population—it tends to the production if, not beyond the wants whether natural or artificial of mankind—yet of more than there are the means of purchasing—so that prices are depressed in some quarters, whilst they are exaggerated in others. And that the profusion of productive power which has been steadily accumulating in the older settled and thus more densely peopled countries, on the one hand, with the boundless natural resources of the newer, and as yet sparsely occupied countries of the west and the south, on the other, have caused the certain results of restrictive policy to be hidden from view—until a general depression has arisen which can only be removed by a returning to, or the adoption of, sounder commercial principles in manufacture and trade. Whatever interferes with the most perfect freedom in the production and interchange of all that the bounty of nature or the industry of man can create for the benefit of all—ultimately militates against the welfare of producer and consumer alike.

It should be no matter of surprise that on the United Kingdom, as the greatest manufacturing and trading nation in the world, having its children and its wealth invested in every part of the globe, the crisis which has been long preparing should bear most heavily; but as still the wealthiest and most powerful of all the nations, she ought to be the best able to surmount it. How this is to be done is not the question for the present discussion. The object of this paper is to point out one of the sources from which the present condition of mercantile and manufacturing affairs has

sprung. We have one kind of evidence to be sought from the older countries, another from the newer. Let both serve as warnings against following the example of either. The British Empire as a whole is neither old nor young, though in her several parts she is both the one and the other. In this lies the secret of her strength, and from this should be evolved her greatest power. The spot on which we are at this moment standing has all the advantages of mature age—that beneath our feet, those of early manhood or yet unsoiled infancy. The one is the complement of the other—recovery from the existing depression—and its change into one of higher elevation than we yet have attained, depends upon the closest union of every part, the blending of all into one harmonious whole.

Discussion *on* Mr. Bourne's Paper.

Mr. W. J. Harris said, as a protectionist, he sometimes felt that he ought never to have been a Fellow of the Society, because he found that its Council and most of the members were bound to another system as though it was the law of the Medes and Persians. He remembered that on a previous occasion, when a discussion on our fiscal policy took place in this Society, the speeches of himself and one or two friends had either been suppressed or greatly curtailed in the *Journal* of the Society.* This had made him feel that this Society was only made for what might be considered the orthodox free trader. He remembered this past circumstance, because he thought it was far better that the Council should not allow such things to occur again, as discussion ought to be perfectly free at their meetings. The statistics which had been given were very valuable, but in his opinion they led to an exactly opposite conclusion to that which Mr. Bourne wished to draw from them. The first question he had to ask was this, when a duty was imposed on an article which an importing country could itself produce, and which through the temporary advantage of better machinery or lower price of labour other countries had the advantage in producing, who paid that duty? Take the case of iron, who paid the duty on the iron sent into America? Had the Americans had to pay an extra price for iron in consequence of the duty that was imposed? The fact was, as was proved by evidence given before the Tariff Commission of the United States, that during the last ten or twelve years the average price of steel rails in America had never been, except in one year, so much more than the average price in England as the amount of the duty, let alone the cost of transit. The consequence was that the British steel rail makers had themselves actually paid the duty; and had it not been for this the price

* A paper of Mr. Harris's which had not been submitted to the Council of the Society was, on one occasion, not inserted as part of a Discussion, and there has never been any suppression of debate in the *Journal*.—Ed. *Jl.*

in England would have been much higher, and the Americans had the advantage of getting them probably nearly as cheaply as if there had been no duty at all. The result of this protective tariff was that the Americans had now a magnificent iron industry, and were now even supplying English North American colonies with iron as against the English manufacturers. Mr. Bourne had enlarged on the increased cost of railways in the States on account of the supposed extra price of iron caused by the tariff. If they had had no tariff at all, the price in England, as well as the cost of carriage, would have risen sufficiently to have made the price in America nearly as high as it actually had been, and instead of the extra cost being very much against the American people, the fact was that their railways had principally been paid for by the English people, and thus not only had English ironmasters to pay a large part of the tariff, but English capitalists had paid for the iron used in construction, so all had come out of English pockets. Of course any discussion on protection involved the question of a duty on food. This was the only country in the world, with the exception of Belgium, that admitted food free of duty, and they ought to get something in exchange at all events for granting the facilities which other countries denied. He admitted the necessity of cheap food for the working classes, but other nations must give a *quid pro quo*. Englishmen had the power in their hands, and he could not think how it was that they were afraid to use it. He was perhaps more interested in free imports than any person in that room, being very largely interested in corn imports, and he wished to assert positively that this country had the power in their hands of enforcing reciprocity on such countries as the United States and Russia especially. If England resolved no longer to admit American food free unless America would come down to very nearly free exchange, they would see a curious result when it came to voting in the United States. Every man who had an interest in land, agriculture, railways, or anything except the manufacturing industry, would say, "we are not going to have our produce taxed for the sake of the manufacturers," and such a bargain could be made within six months as would increase the English export trade enormously. And so they could do the same with other nations one by one. He did not want to put on a protective duty merely for the sake of our landowners or farmers, but if these results of foreign industry were admitted free, they had a right to demand a *quid pro quo*. So far as British and Irish farmers were concerned, he admitted that they were more entitled to assistance than almost any other class, but it might be given in another shape than the protection of corn. If they gave the poor cheap bread, they had given them a good deal, and if the other taxpayers had to pay a little more so as to enable farmers to weather the storm, they ought not to complain. The poor would necessarily be gainers by a defensive tariff on manufactured goods, because they were manufacturers of, but not consumers of such goods. Four-fifths of their expenditure went in food and living, and if food and house rent were cheap, they suffered very little by a duty on manufactured goods. It was the rich who were the

largest buyers of such goods. He therefore advocated what he might call an honest socialism; he wished to elevate the poor without actually despoiling the rich. The gap between poverty and riches in this country was too great, and the only cure was to go back to a sensible system of defensive tariffs. He called them defensive tariffs, because, as Mr. Bourne distinctly proved, they were losing one after another the established trades of the country, and the loss fell on the working classes. They were far behind the rest of the English speaking peoples as to the prosperity of their labouring classes, and even the continental nations were gaining very fast upon them, for while in England wages were gradually declining, on the continent they were gradually advancing. The exports of manufactured goods from France had increased during the last two months by more than 30 million francs, while those of England had decreased between 1 and 2 millions sterling. If protection was so bad for a country, how was it that protectionist nations were gaining upon them? It was a matter that surely ought to be carefully examined into. He believed their present system was false from beginning to end, and that every effort should be put forth to obtain something like reciprocity on the part of other nations.

Mr. G. Baden-Powell, M.P., alluding to Mr. Harris's remarks, pointed out that the United States in its manufacturing and industrial life was one of the grandest instances in the world of the entire success of free trade. They had a country as large as Europe, populated already by 50 millions of people, a population rapidly increasing, and there was not a single customs duty anywhere levied over that large continent. The exports and imports with the outside world were a comparatively insignificant factor in the industrial life of the States. Mr. Bourne had given them a mass of very valuable statistics, which it would take a great deal of time to properly consider, but there were certain notes of warning that ought to be sounded in dealing with them. Mr. Bourne had given a prominent place to the effect of export trade on their industrial population, but he had omitted to insist that the home trade largely exceeded the export trade, and that the great mass of the home population was mainly occupied in supplying home wants. This home trade was a very important element, but was usually left out of account, because the Board of Trade had no part in the business of publishing home trade statistics. Again, Mr. Bourne told them that the exclusion of their products from foreign markets was the result of the inclination shown by foreign nations generally to increase their protective duties. In the case of Germany that was no doubt true, but he doubted whether they had shown any disposition of late years to heighten tariffs, either in the matter of rates or number of items. In many countries the tendency had been rather the other way; and no doubt in China, India, and some of the less civilised portions of the earth, in recent years we had successfully opened up markets that were not restricted by hostile tariffs. Another important point was that in dealing with exports and imports from the English point of view,

the chief object should be to find out the percentage of manufactures to raw material and food, and if they followed English exports, they would see that for many years they had maintained a very large percentage of manufactured goods in their exports, and a very small percentage in the imports. Looking at other countries, they found that this percentage had not been maintained so favourably for manufacturing industries. Mr. Bourne did not appear to have taken account of imports from colonies and from foreign States, for instance, in South America, in return for loans advanced, which had also covered a considerable amount of exports. This was a large item in their foreign and colonial trade. He had also omitted the export of diamonds from South Africa, which together with ostrich feathers represented a total value of 5 millions annually. The main moral of the paper was most excellent. It seemed to tell them that where they had to look to was their own empire; there they had their natural exchange in manufactured products for raw material. They had amongst them the Agent-General for that great free trade, and most progressive of their colonies, New South Wales, which took 8*l.* of value per head of English manufactured goods every year, and as Sir Saul Samuel whispered to him, "could they expect them to do much more?" If that was taken as an average, it showed what a very valuable market might be found in their own colonies. He hoped the result of this discussion would be to draw the attention of many present to the very great value of those colonies as sources of supply of raw material, as markets for manufactured goods, and as fields for the investment of capital and for the labour of a surplus population.

Mr. John Glover said no doubt other nations had had the benefit of that description of tariff which Mr. Harris wished to return to. It had been tried in this country, and the population had starved upon it, and they were starved into free trade. They could not feed 4 million wage earners on the system of policy which Mr. Harris recommended. There was then want of employment in all directions, miserable wages, and a state of starvation in England compared with which they knew nothing about bad times now. They did not give up that system out of deference to Adam Smith, Sir Robert Peel, or Cobden, but because they wanted work and food, and could not get enough of either through a tariff with 1,200 articles. Instead of 4 millions of weekly wage earners, we have now to provide work for 13 millions. That is the great English problem. If we made the discovery that we could get better work, better wages, and cheaper food for our enormous population by reverting to the system they gave up forty years ago, there was nothing to prevent their doing so, only they must be convinced of the fact. In thinking about foreign tariffs, they ought to remember that the tariff in operation in this country was adopted for no other reason than that it suited them. They did not adopt that tariff to suit anybody else; and the simple eloquent fact that under its operation trade had increased fivefold, was a conclusive proof that those who were responsible for that great change in their fiscal policy did not make a mistake. Mr. Harris

had certain objections to what was called free trade. The trade of England was not free. In a certain limited sense only it was free; it was free from retaliatory duties, it was free from duties of reciprocity, it was free from differential duties, and from protective duties, but the amount taken as revenue by custom duties is as heavy as ever. Twenty millions was levied on what came into the country, and they raised that sum in that way for one reason only, because it suited them, and they must not for a moment deny the right of other States to suit themselves in the same matter. Their own tariff, free as it was called, operated very differently on different States; for instance tea from China was only admitted on a duty of 50 per cent., while sugar from Manilla and Java was admitted free. The circumstances of different States varied much. In the application of fiscal principles, the consideration which should govern every State was what suited them, and they could not complain of foreign tariffs so long as they operated equally on foreigners. What they had a right to complain about was bounties and differential duties, and when they were refused the favoured nation clause. Foreign tariffs affected England very diversely. For instance, France had lately levied a duty of 5*s.* on wheat, and that proceeding on the part of the French was no doubt a most important factor in the present very low price of wheat in England, by concentrating supplies on England, which but for that duty unquestionably would to a large extent have found its way to French ports. The Germans, Dutch, Austrians, and even Russians had dealt with the article of sugar in a way so extraordinary, that under the influence of their tariff regulations sugar was travelling all round the universe just now. He had been lately carrying sugar from the Black Sea to London, and it was going to a large extent from Germany and the Baltic even to New York. Sugar was also being sent from New York to London. He wished to put in a plea to this effect, that Englishmen of all people in the world ought to be patient in this matter. Free traders never promised to mend all the ills to which trade was subject, the partial application of the doctrines of free trade to their own affairs had increased their trade fivefold, and when other States, somewhat released from the pressure of waste and military necessities as they would be by-and-bye, came to utilise their resources in industrial senses more completely, Englishmen would get their profit out of the further application of these doctrines, but not from any reversal of that which had done so much good to the country.

Mr. James Edgcome said that they might at once discard this "bogey" of the condition of things in the past, under conditions which could never possibly recur. The free trade policy introduced forty years ago was inaugurated in the full belief that all the nations of the world would reciprocate, and that the free trade then advocated would become universal. Mr. Bourne had abundantly proved that hostile tariffs were prejudicial to their industries, and were "in restraint of trade." But all taxation of any kind was "in restraint of trade," and he protested against a paper of that kind going

forward treating of trade as though it were solely foreign trade, without any reference to the home industries, which laboured under a burden of taxation. Mr. Bourne said that whatever interfered with the most perfect freedom in production and interchange, ultimately militated against the welfare of producer and consumer alike. That statement they could all endorse, but all taxation militated against that perfect freedom, and it was a question to be considered whether it were wiser to throw the whole burden upon their own internal resources, or in some measure so to regulate the incidence of such taxation, that it should fall fairly upon all classes of producers as well as upon the consuming classes. He protested against the theory that import duties necessarily raise the price of articles to an importing country. Mr. Bourne's paper was entirely founded upon that fallacious idea, but the whole history of commerce proved its inaccurary. Mr. Bourne had quoted an extract from a paper which he described as a "competent authority," in which a somewhat exaggerated remark was made, but he had not said whence it was derived, and he (Mr. Edgcome) would be glad to know what was the nature of that "competent authority." The statement was, that in reference to the remission of certain import taxation in the United States, "these articles will reduce the Government's revenue about 5 millions of dollars, and the burden upon the taxpayers and the consumers of the country at least 50 millions of dollars." He could not see in what possible way such a result could happen. It reminded him of an article which appeared in a daily paper five years ago in London, in which it was stated that an import duty of 5*s.* per quarter upon corn, the price being then over 40*s.* per quarter, would raise the price of the loaf 50 per cent. Those were some of the wild statements frequently advanced by writers who had never studied their subject, and were writing only for the moment. He would undertake to say that for one case where it could be proved that the price of an imported article, which was capable of being produced in the importing country was increased in a greater degree than the amount of taxation levied upon it, he would bring a commensurate number of other cases to prove that the effect of an import tax upon such articles was rather to bring about in the long run a lowering of prices to the consumer. That had taken place to his own personal knowledge in the United States, in France, and in Germany, more especially during the last five years. It was an event which took place in Canada after the imposition of its new protective tariff; and although after a time over production took place, still in the long run the effect was that many places almost a desert, had become fertile spots. How far they were to deal with hostile tariffs was not a question for debate there. The figures Mr. Bourne had brought forward were valuable as proofs of what they knew and believed by painful experience, and he hoped they would lead people to see in what way they could bring influence to bear upon foreign States to reduce such tariffs. The policy of persuasion or example had failed, and they must ere long consider how far they were justified in continuing a policy which had for its one effect a vast increase of external trading, but which at the same time

brought about a great and increasing diminution in home trade and industry.

Mr. Rowland Hamilton said there could be no doubt that foreign tariffs restricted our export trade, though unless we adopted the same policy their effect was only partial, for as long as we receive imports, exports will find their way out by indirect if not by direct courses in order to pay for them. But no fair estimate of the state of industry could be made without taking into account our home trade. So far as foreign tariffs were operative, they tended to favour its development. Its relative importance might be inferred from a statement which was roughly verified by the census returns, that our building trades employed as many workmen as our three great textile industries put together. A thorough investigation into that branch of the subject was urgently needed, and he was confident that it would show a very marked increase both in the number and the value of home industries. All trade and industry was a matter of adaptation, and many of our manufacturers benefited largely by freely obtaining materials from abroad which were made up into their own products; they not only got an advantage in cheapness, but also an example which might be profitable to them in many ways for their own work. Mr. Bourne had seemed to him to accept the test of prices too indiscriminately. On every side they had not simply a diminution in price, but also a genuine decrease in the actual cost of production. Take for instance, according to the old economic formula, natural agents, capital and labour, as the elements of production. Chemistry had on all sides increased to an enormous extent the use made of those agents which nature had provided, and a long category of articles which ten or twenty years ago were thrown away as rubbish, were now made useful at a very small cost. Labour had been greatly increased in effect, not only by machinery, but by organisation, by hereditary aptitude, and indirectly by better food, houses, and higher education. And taking capital, which they might suppose to be less concerned in this, what had been the effect of the telegraph and of steam? Could they not with the same amount of capital do a vastly greater work than was ever dreamt of twenty-five years ago? They must therefore not lose sight of the fact that the actual cost of production had been diminished during the last twenty-five years, and to look to any course of tariffs, or any change in the standard of value as the sole cause of that diminution, was certainly a very great error. Their advantage was far more real than anything that could be affected by any such external causes, or any such modes of measurement.

Mr. C. M. Kennedy, C.B., inquired whether Mr. Bourne was quite accurate in saying that the French tariff favoured low priced goods, and also whether in the statistics of Belgian trade an account was not to be taken of transit as well as of Belgian trade properly so called. He wished chiefly to allude to the bearing of the question of international trade in regard to tariffs. The object of free trade was to bring to the consumers the largest quantities

in the cheapest manner, but as a most eminent authority, Sir Thomas Henry Farrer, had said, there were relations between States which were still more important than trade. Customs duties were not levied for the pleasure of the thing, nor yet to provide a livelihood for a certain class of officials; they were levied primarily to meet the financial exigencies of the State. Mr. Bourne, he ventured to think, had not sufficiently dwelt on the subject of international action. It was the fact that after the revision of the customs tariff forty years ago, little benefit ensued in the United Kingdom in regard to foreign trade until the adoption of the policy of 1860, the commercial treaty system which led to the great extension of English trade. But that policy was not followed up. The French Government followed it out, but not the English, and therefore when the protectionist reaction took place on the continent, we had no hold over foreign tariffs. The remedy he would suggest would be if possible to revert to the commercial policy of 1860, and the adoption of simultaneous action in different countries. There was no contradiction to free trade in the conclusion of a tariff treaty when countries on each side engaged to give security to trade, and to afford the time required for commerce to adapt itself to different channels. The results between 1866 and 1872 showed clearly that the commercial treaty system of 1860 was the real cause of the great development of British trade at that time, and that the lapse of that system was one of the chief causes of the loss of trade in recent years.

Mr. Thomas Cornish regretted that no comment had been made upon the gold question. Instead of free trade having all the credit for the vast strides that had taken place in the last thirty years, he thought the greatest credit should be given to that over which free trade had no control, namely, the gold mining industry, through which nearly double the quantity of gold had been imported into England than the whole world previously possessed. It was this that was the grand secret of the extension and prosperity of the trade and commerce of England. As an instance of the advantage of a protective policy, he quoted the case of Victoria, which at one time actually sent all the tallow and fat to England to be made into candles and sent back to Victoria for use, where he himself had had to pay at the rate of 1*s.* 6*d.* and 2*s.* a pound for candles, buying them by the ton. A protective tariff of 2*d.* a pound was ultimately placed upon the candles, and now they were absolutely able to manufacture the whole of the candles required by the colony, and to export as well. Raw hides used to be exported in large quantities, and leather goods imported, but by a protective duty on leather goods the colony manufactures most all leather work, and exports leather to England in large quantities.

Mr. Bourne, in replying to Mr. Harris's statement that iron without the tariff would have risen as high as it was at present, said his prices of iron were derived from the report of the Iron Associations of America and England, and he could not conceive how it was possible to suppose that the levying of a duty had not

had any effect at all in raising the price. If that had been the case, then the duty ought to be immediately abrogated. No doubt the policy of both the United States and Canada was distinctly directed towards restraining the importation of goods in order to promote native industry, and the table of the prices of iron showed that to the fullest extent. With regard to the tea duties, no doubt all duties did act in restraint of trade, but it was one of the misfortunes of expenditure, that revenue must be raised somehow or other, and there was no article on which a duty was more fairly and properly leviable than on tea. The rapid extension in its consumption showed that China had not much cause to complain. They were told they must be patient; but in his view they were only on the fringe of the depression of trade, and unless some unexpected change took place, they would have an infinitely worse state of things than at the present moment. Mr. Edgcome had asked for his "competent authority," it was one of the legislators interested in the tariff; but it did not much matter, because every point there alluded to was proved by the table produced with regard to the trade in iron. As to the Belgian transit trade, no doubt it was very difficult to discover what was the proportion of trade in each particular country, whether for consumption in that country or for transit. Customs duties were not levied in England except to meet financial necessities; but that was not the case in other countries. Foreign and colonial tariffs were framed not for the purpose of raising the largest amount of duty, but of excluding English productions. The gold question was not the matter under debate, and therefore nothing had been said about it. The question was not why trade was depressed, or what was the cause of an alteration of prices, but was simply confined to the history, progress, and effect of the tariffs of other nations. With regard to the candles in Victoria, there must have been something very faulty in the internal regulations of that colony if she needed a protective duty. The natural protection of the carriage of that fat all the way to England, and of the candles back again, should have been a sufficient protection.

The President said, whatever opinions each individual member might entertain with regard to Mr. Bourne's facts or estimates, they would be unanimous in thanking him for the labour he had undertaken, and the valuable information he had brought before them.

Occupations *of the* People *of the* United Kingdom, 1801-81.

By Charles Booth, Esq.

[Read before the Statistical Society, 18th May, 1886. The President, Sir Rawson W. Rawson, K.C.M.G., C.B., in the Chair.]

CONTENTS:

	PAGE
I.—General Review of Occupation Censuses of the United Kingdom, noting the peculiarities of each Return, and the Differences of Method adopted	314
II.—The Occupations of the People considered generally, including the Numbers, Percentages, Changes, Relative Importance, &c., of the Leading Industries for—	
1. England and Wales.	319
2. Scotland	336
3. Ireland	338
III.—Suggested Improvements in Census Returns	346
Explanatory Remarks (referring to Appendices)	349
Appendix.	
A.—1. Table of Occupations, England and Wales, 1841-81	351
2. Table of Occupations, Scotland, 1841-81	372
3. Table of Occupations, Ireland, 1841-81	393
B.—1. Table of Percentages, England and Wales, 1841-81	414
2. Table of Percentages, Scotland, 1841-81	418
3. Table of Percentages, Ireland, 1841-81	422
C.—Comparison of the Industrial Constitution of England with that of Scotland and Ireland, 1851-81	426
D.—The Useless Classes, England and Wales, Scotland and Ireland, 1861-81	430
E.—Army and Navy, Merchant Seamen, 1861-81	431
F.—Table of Increase and Decrease of Population in Urban and Rural Areas, England and Wales, 1871-81	432
G.—Table of Influx and Exodus of Population in same Areas, 1871-81	434

I.—*General Review of Occupation Censuses.*

Although it was not till 1831 that any detailed return of the occupations of the people was attempted, there had been in the earliest censuses a rough and ready method adopted of dividing the population into three or four large groups, with a view of distinguishing those who obtained their support directly from the land from those engaged in manufacture, trade, or the learned professions. Thus in 1801 we find returns under three headings: 1. Persons chiefly employed in agriculture; 2. Persons chiefly employed in trade, manufacture, or handicraft; 3. All other persons not employed in the two preceding classes. This return, it will be noted, is of individuals, but in 1811 and 1821 the number of *families* is substituted for individuals. The occupations are given in the same form, but it is the number of families chiefly employed in agriculture, or otherwise, that are stated. The principle on

which the returns are based is, however, the same, and it is one on which I should wish to lay stress, viz., to ascertain the total number *supported* by each of the great branches of industry.

To find out how many depend for their subsistence on any particular industry should surely be the final aim of an occupation census. From other sources we may ascertain the total amount of work done in any industry for a given period, and the wealth obtained by that work, but whether it keeps its dependents in comfort or hardship will depend in great measure upon the entire number who have to be supported by it. For an example we may compare the cases of the textile with the mining industries. In the former we find nearly all the available members of the family, both male and female, in the ranks of the actually employed, whilst in mining the labourers are almost entirely able-bodied males. Consequently an average wage which amongst the cotton operatives would be sufficient to ensure comfort, would amongst coal miners be inadequate. It may be said that these differences are so strongly marked, that due allowance might be made for them in instituting any comparison. But the result could not be by any means so accurate as one obtained through actual enumeration, whilst in the many branches of manufacture, conveyance or distribution, in which the difference is not so clearly, if at all, distinguishable, any such rough allowance is out of the question. A comparison of our industries which would show the relative circumstances of those connected with them (whether as regards health or social position) would be a very interesting as well as useful study, but while the census enumerations are made on the present basis, no such comparison can with any accuracy be undertaken. For these reasons it is questionable whether the authorities, in dropping, subsequently to 1831, the principle in question, did not make a mistake which has shorn later returns of considerable value.

Resuming our review from 1821, we find that in the next census (1831) the first attempt is made at any detailed enumeration of occupations; it is, however, of a very limited extent, being strictly confined to males aged 20 years and upwards, engaged in what are called "retail trades and handicrafts." The great bulk of the population are still summed up under a few headings as in the previous decades, though particulars are given under these headings of males over 20, and columns added for professional men and domestic servants.

The census of 1841 shows considerable advance in the details given. For the first time, all the principal occupations in the country are recorded, and the whole population is brought directly into the tables of enumeration. There are separate returns for

every county and for the large towns; the sexes are distinguished, but the ages are only given at two periods, under or over 20 years of age. The former occupations of paupers, lunatics, and criminals, are given in separate tables, and the whole is arranged in alphabetical order. Important, however, as was the advance made in the method of tabulation at this period, it was exceeded in 1851, when was originated the model on which the returns are still drawn up. The great feature of this census is the grouping of occupations into seventeen classes with numerous sub-classes, the ages being given in quinquennial periods. The system of classification is as follows:—

Class 1. Persons engaged in the Imperial or Local Government.

Class 2. Persons engaged in the defence of the country.

Class 3. Persons engaged in religion, law, or medicine.

Class 4. Persons engaged in art, literature, science, and education.

Class 5. Persons engaged in household duties, as wives, children, &c.

Class 6. Persons engaged in boarding, lodging, domestic service and dress.

Class 7. Persons engaged in commercial pursuits (merchants, bankers, &c.).

Class 8. Persons engaged in conveyance.

Class 9. Persons engaged in agriculture.

Class 10. Persons engaged in breeding, animal tending, and fishing.

Class 11. This class is a very mixed one, and has since been, with advantage, largely reduced. It was in 1851 supposed to include all those engaged in the higher branches of mechanical or chemical arts, and embraces artizans and mechanics, book sellers and printers, the building trades, machine, tool, and instrument makers, coach and shipbuilders, chemical manufacturers, dyers, &c., and even persons engaged in the public amusement.

Class 12 is confined to workers or dealers in animal substances, and thus includes with the family butcher and poulterer all the woollen and silk operatives.

Class 13 comprises workers and dealers in vegetable substances, from the brewer to the upholsterer, from the paper manufacturer, or cotton spinner, to the greengrocer.

Class 14 includes all mineral workers.

Class 15 is for unskilled or unspecified labour.

Class 16 is for persons of rank, property, or independent means.

Class 17 is for useless or disabled members of society, criminals,

paupers, pensioners, and others supported by the community; but the returns are very incomplete and misleading, for only those paupers, lunatics, or criminals, &c., who failed to return themselves to a definite occupation are here included. The great majority of these classes having returned themselves as following, or having at some period of their lives followed, an occupation, have been returned with the regularly employed. The tables thus become vitiated by the presence of a large number of individuals whose claims to be considered as workers are very remote. (*a*)

It may be admitted that under any system of enumeration a considerable number of persons would creep into the occupied class who had no business there; but the fact that a return cannot be made perfect, does not seem a sufficient reason why it should not be as nearly accurate as possible, and therefore to class as workers a vast number of persons who are known to be not only outside the ranks of labour, but a dead weight and burthen upon it, appears to be inadmissible. (*b*)

In the census for 1851 (which like its predecessors is for Great Britain) the separate tables for England and Wales, and for Scotland, contain the occupations summarised and brought within reasonable limits, the smaller divisions of labour being included under some broad or general heading to which they belong, or classed as "others," but there are also tables for Great Britain which give details of all these minor forms of employment. In 1861 the returns for England and Scotland are no longer given in conjunction, but are placed in separate volumes, and the detailed table with further amplification is given for each country. The

(*a*) Separate tables, giving information on this subject, were added in 1841 and 1851, but after 1851 these separate tables are dropped altogether. The Scotch census authorities in 1861 entered a vigorous protest against the method objected to above, as well as against the failure of the returns to state the numbers supported by each industry, and gave practical effect to their opinions in 1871 by keeping the useless classes (lunatics, criminals, and paupers) in every case distinct from the workers, and by returning under each group of workers in inter-connected occupations the number of persons dependent upon them; but this attempt was not repeated in 1881.

(*b*) On the subject of classification, the work of the Irish Census Commissioners in 1841 must be noted. The system originated by them, going back to the first elements of society, seeks to return each individual according to the part he is taking in supplying the wants of man. If he is helping to supply the food necessary for man's sustenance, he will be returned according to his occupation under the heading "Food;" first the producers of the raw material, then those engaged in its preparation or manufacture, then the distributors. Similarly with clothing, and so on. The fault of this classification is that it does not readily deal with the complications of civilised life; but its good points are worthy of recognition, and it was most unwillingly abandoned by the Irish Commissioners, whose work throughout is worthy of great praise, both for the lucidity of the tables and for the beauty of the maps and diagrams.

consequence is that the tables are rendered very bulky and unwieldy, and this becomes more striking on referring to the returns in the corresponding volume for 1871. Here the pruning knife has been very busy; the tables are reduced to a third of their former size, numbers of small trades are spirited away, and in their place appears a rather formidable item in the word others, for an explanation of which it is necessary to refer to the voluminous report.

Meanwhile, though the broad plan of classification remains much the same as in 1851, huge transpositions of numbers have been made from one class to another; the domestic class in one census includes the larger part of the population, and in the next is reduced by more than half; 350,000 persons in England alone (consisting of the wives and other relatives of farmers, &c.) are taken from the agricultural class of one census and placed in the unoccupied of another; the partially occupied wives are in no two successive censuses classed alike—and generally there is such a want of fixity of principle or method, that even competent authorities have been seriously misled regarding the apparent results. Possibly these changes were to a large extent necessary or unavoidable, but surely attention might have been drawn to them and some explanation given, instead of which there is not even so much as a foot note. The seeker after information is left to grope his way in the dark; if by chance he stumbles on the truth, well and good, if not he but adds his quota to the enormous total of false information before the public.

It was with the idea of remedying to some extent this state of things that I undertook the compilation of the tables, the results of which are submitted in the appendix to this paper. They do not contain any new or original information, but restate that given in the censuses in a more uniform and accessible shape.

The principle of assigning the unoccupied persons to the industries on which they are dependent has been adopted in a very wide and general form. The method of apportionment resorted to is open to many objections, but I think the results may, broadly speaking, be accepted as presenting a fairly accurate picture of the whole population, showing the part played and the place taken by each section of it. I may mention that the results obtained in the census of Scotland for 1871 by actual enumeration do not differ very materially, allowing for differences of classification, from those given for the same period in the present tables. I have, moreover, stated all hypothetical figures separately, so that they may be taken *quantum valent.*

The system of classification adopted will speak for itself as we proceed.

II.—*The Occupations of the People Considered.*

In examining the returns for the different divisions of the kingdom it must be premised that, owing to the different method of tabulation as to ages and the imperfections of the returns, the figures for 1841 do not, so far as England and Scotland are concerned, offer a very safe basis of comparison, and have therefore not been used in this paper. They are however given in the annexed tables, while the incomplete ones of 1831 also appear in the more detailed tables, a copy of which is deposited in the library of this Society.

1. *England and Wales.* (*c*)

Between 1851 and 1881 the whole population increased 12 per cent. in the first decade, 13 per cent. in the second, and 14¼ per cent. in the third; or in numbers, 2,139,000, 2,646,000, and 3,262,000; at the same time the dependent women and children (that is, those not returned as employed in any way) increased 11¾, 13, and 18 per cent. in the respective decades, with the result that from being barely 53 per cent. of the whole population in 1851 and 1861, they rose to 55 per cent. in 1881. Almost the whole of this increase, as the subjoined table shows, lies with the children :—

TABLE I.—*Showing the Percentage of Dependents above or under* 15.*

Year.	Males.		Females.		Total.
	Under 15.	15—20.	Under 15.	Over 15.	
	Per cnt.	Per cnt.	Per cnt.	Per cnt.	Per cnt.
1851	15·7	0·5	16·5	20·3	53·0
'61	15·8	0·4	16·7	20·0	52·9
'71	16·3	0·5	16·9	19·5	53·2
'81	17·1	0·4	17·5	20·0	55·0

* *Note.*—It is necessary to remark the changes that have occurred in the proportions of children, women, and men during the period under review, which are as follows:—

TABLE IA.—*Percentages of Whole Population.*

	1851.	1861.	1871.	1881.
Children	35·4	35·6	36·1	36·5
Women (over 15)	33·4	33·5	33·3	33·0
Boys 15—20.....	4·9	4·8	4·8	4·9
Men 20—25	4·4	4·5	4·4	4·5
„ 25—65	19·8	19·7	19·5	19·2
„ 65 and upwards	2·1	2·1	2·1	2·1
	100·0	100·0	100·0	100·0

(*c*) The population of the "islands in British seas" has not been dealt with in any of the accompanying tables.

The slight changes, up and down, in the proportions of dependent women (over 15) can be accounted for, and it may be taken that the dependent women of this age are constant at 20 per cent. of the whole population, and that there is a similar constancy in the proportion of those who support themselves, or have some form of employment outside of home duties.

The following table shows this, and indicates the principal changes in the employment of women :—

The increase in the numbers of children compared to adults is very remarkable, and the result, if stated in proportions of women and children to 100 men of 25—65, is as follows :—

	1851.	1861.	1871.	1881.
Children	179	181	185	190
Women	169	170	171	172

The comparison has been made with men of 25 to 65 years of age, as best representing those by whom wives and children are supported. If, however, 20—65 were substituted, the results would be very similar in effect.

Dividing the children between those at school or at home and those at work, the proportions are :—

	1851.	1861.	1871.	1881.
Unoccupied	163	165	171	179
Occupied	16 } 179	16 } 181	14 } 185	11 } 190

The increase in dependent children is thus due partly to fewer children being employed, but mostly to an actual increase in the proportion of children in the population.

TABLE II.—*Showing Changes in the Employment of Women (in Thousands).*

Occupations.	1851.				1861.				1871.				1881.			
	—15.	Per Cent.	15—.	Per Cent.	—15.	Per Cent.	15—.	Per Cent.	—15.	Per Cent.	15—.	Per Cent.	—15.	Per Cent.	15—.	Per Cent.
Textiles, &c.	81	0·89	391	4·27	84	0·81	443	4·31	89	0·77	466	4·00	66	0·49	500	3·76
Dress	30	0·33	441	4·82	26	0·26	525	5·09	24	0·20	529	4·54	20	0·15	589	4·42
Others	31	0·33	358	3·92	25	0·24	364	3·54	26	0·22	434	3·73	18	0·13	465	3·49
Industry. Total	142	1·55	1,190	13·01	135	1·31	1,332	12·94	139	1·19	1,429	12·27	104	0·77	1,554	11·67
Medicine	—	—	26	0·29	—	—	27	0·26	—	—	31	0·27	—	—	38	0·29
Education	—	—	67	0·73	1	0·01	82	0·80	3	0·02	97	0·83	5	0·04	127	0·95
Domestic Service	63	0·68	909	9·94	88	0·85	1,128	10·96	112	0·97	1,375	11·80	101	0·75	1,446	10·85
Others	—	—	6	0·06	—	—	11	0·11	—	—	18	0·16	—	—	28	0·22
Independent	—	—	150	1·64	—	—	130	1·26	—	—	168	1·44	—	—	200	1·50
Self-supporting. Total	205	2·23	2,348	25·67	224	2·17	2,710	26·33	254	2·18	3,118	26·77	210	1·56	3,393	25·48
Dependent	2,958	32·34	3,635	39·76	3,338	32·44	4,018	39·06	3,840	32·95	4,441	38·10	4,530	33·97	5,201	38·95
Total female population	3,163	34·57	5,983	65·43	3,562	34·61	6,728	65·39	4,094	35·13	7,559	64·87	4,740	35·53	8,594	64·43
			3,163	34·57			3,562	34·61			4,094	35·13			4,740	35·53
			9,146	100·00			10,290	100·00			11,653	100·00			13,334	100·00

It will be seen from this table that the proportion of industrially employed women over 15, compared to the rest of the female population, has decreased continuously, but that the proportion of those otherwise employed, in domestic service, teaching, &c., has increased in an equal degree year by year, so that the total employed one way or another remains practically constant. There is an apparent error in the returns of Domestic Service for 1871 which slightly mars the series. This class seems to have been exaggerated at the expense of the domestic dependent class for this decade.

Taking the occupied or unoccupied together, the whole population may be divided as follows:—

[In thousands.]	1851.	1861.	1871.	1881.
Unoccupied (or dependent) females (under 15)....	2,958	3,335	3,839	4,531
,, ,, (over 15) ...	3,636	4,020	4,440	5,200
,, males (under 15)....	2,815	3,173	3,705	4,404
,, ,, (15—20) ...	90	85	104	126
Total of unoccupied	9,499	10,613	12,088	14,261
Occupied (or self-supporting) females (under 15)	205	227	255	209
,, ,, (over 15)....	2,348	2,708	3,119	3,394
,, males (under 15)	376	415	403	325
,, ,, (15—20)....	783	873	981	1,142
And all males over 20.....	4,717	5,230	5,866	6,643
Total of occupied.....	8,429	9,453	10,624	11,713
,, population.....	17,928	20,066	22,712	25,974

All males over 20 are counted, for this purpose, with the occupied or self-supporting class, and the whole employed class may be divided as follows:—

	1851.	1861.	1871.	1881.
	Per cnt.	Per cnt.	Per cnt.	Per cnt.
All forms of industry (productive or distributive)	78·4	77·2	75·5	74·2
Public and Professional Service	4·6	5·3	5·5	5·6
Domestic Service.....	13·3	14·6	15·8	15·7
Property Owning (so returned).....	2·5	2·0	2·0	2·2
Indefinite	1·2	0·9	1·2	2·3
	100·0	100·0	100·0	100·0

The increase of 1 per cent. in the Indefinite class for 1881 is due to the transfer to this class of retired persons, who in previous censuses were returned under their former occupations; but at best those tabulated under this head are a meaningless remainder, the result of accident or defects of enumeration; for every occupa-

tion that can be claimed by paupers or criminals passes them out of the Indefinite into the ranks of Industry. Similarly, the class called Property Owning is entirely delusive. It contains a few land owners, house owners, and others who might as reasonably be included with other employers of labour in the sections of Industry, and it also includes a good many independent women. The percentage which this class, such as it is, bears to the whole population, shows a decrease since 1851; but it is certain that during the thirty years in question the classes whose maintenance depends on the mere possession of property must have been largely augmented. Their small numbers and decreasing proportion seem to show, however, that men increasingly claim some form of employment as their status. Some of the well-to-do whose occupation is only nominal will no doubt swell the numbers of the Army and Navy, and of the Law; but perhaps as many in proportion may be found in Industry. Nor is nominal employment confined to the well-to-do. All classes alike furnish those who, whether old or ill or idle, are of little practical account as workers, and it is as impossible to take account of these in a census as it would be to express different degrees of industry, or differences in the quality of work done by those who may be equally industrious.

It will further be seen that Public and Professional Service, with Domestic Service, have gained what productive and distributive industry have lost, and that this movement has been progressive.

With regard to Domestic Service it is noteworthy that the increase lies mainly in the women and girls, the indoor men servants having decreased from 74,000 in 1851 to 56,000 in 1881, while the population has risen from 18 to 26 millions—a fact which would seem to indicate a greater diffusion of wealth, and also, perhaps, less ostentation of expenditure among the very rich. (*d*)

In Public Service and the Professions the percentage of persons occupied in Administration, Law, and Medicine, has slightly decreased, while Police, Amusement and Education have increased, Education especially showing, as might be expected, a large addition in the last decade.

Dividing those employed industrially under various heads, the following table gives a broad picture of the manner in which the

(*d*) On the other hand, coachmen have largely increased, thus:—

	1851.	1861.	1871.	1881	
Public	20,800	26,300	40,000	30,500	Private coachmen and flymen are evidently mixed in the returns.
Private	22,300	33,300	37,400	73,200	
	43,100	59,600	77,400	103,700	

people of England and Wales are occupied, expressed in percentages (for actual numbers see Appendices A and B) :—

TABLE III.—*Showing Employments of the People by Percentage.*(*e*)

Occupations.	1851.		1861.		1871.		1881.	
Agriculture	20·9		18·0		14·2		11·5	
Fishing	0·2	25·1	0·2	22·7	0·2	18·9	0·3	16·6
Mining	4·0		4·5		4·5		4·8	
Building	5·5		5·8		6·3		6·8	
Manufacture	32·7	38·2	33·0	38·8	31·6	37·9	30·7	37·5
Transport	4·1		4·6		4·9		5·6	
Dealing	6·5	10·6	7·1	11·7	7·8	12·7	7·8	13·4
Industrial Service	—	4·5	—	4·0	—	6·0	—	6·7
Industry	—	78·4	—	77·2	—	75·5	—	74·2
Public and Professional Service	4·6		5·3		5·5		5·6	
Domestic Service	13·3	21·6	14·6	22·8	15·8	24·5	15·7	25·8
Others	3·7		2·9		3·2		*4·4	
Occupied population	—	100·0	—	100·0	—	100·0	—	100·0

* As already stated, the figures here are subject to correction of about 1 per cent. for retired persons previously included with their nominal trades.

This picture, it will be seen, separates the industrial classes into three main divisions, showing the percentage of those engaged in

(*e*) With a proportion of dependents added to each section (on a reasonable and careful estimate), the result is as follows :—

TABLE IIIA.—*Showing Means of Support of the People by Percentage (Estimate).*

Occupations.	1851.		1861.		1871.		1881.	
Agriculture	23·8		20·9		16·5		13·2	
Fishing	0·2	28·6	0·2	26·4	0·2	22·1	0·3	19·5
Mining	4·6		5·3		5·4		6·0	
Building	7·7		8·2		8·8		9·5	
Manufacture	29·3	37·0	29·6	37·8	28·9	37·7	28·2	37·7
Transport	4·8		5·8		6·2		6·9	
Dealing	7·7	12·5	8·4	14·2	9·0	15·2	9·0	15·9
Industrial service	—	5·9	—	5·3	—	7·7	—	8·5
Industry	—	84·0	—	83·7	—	82·7	—	81·6
Public service	5·7		6·1		6·2		5·9	
Domestic service	6·8	16·0	7·6	16·3	8·2	17·3	8·6	18·4
Others	3·5		2·6		2·9		*3·9	
Whole population	—	100·0	—	100·0	—	100·0	—	100·0

* See note to Table III, above.

The above method of stating the industrial divisions of the nation is much to be preferred to any other, and it is a pity that accurate figures do not exist for apportioning the dependents.

or supported by (1) the production of raw materials, (2) the preparing them for use, and (3) distributing productions finished and unfinished; and it will be at once observed how enormous are the interests of production and manufacture compared with those of distribution, so far as they can rightly be separated at all.

Coming now to a detailed review of the industrial classes, we notice, first, that the production of raw material employs a decreasing percentage. We depend, as is well enough known, more on what we import, and less on what we find at home. The reduction however falls entirely on Agriculture, as the percentage employed in Fishing and Mining have increased. And it is to the present condition of Agriculture that more attention has lately been given than to any other part of our industrial position. We have to face the fact that for the three decades since 1851, those employed on the land have decreased at the rate of $3\frac{1}{2}$ per cent., $11\frac{1}{2}$ per cent., and 11 per cent. respectively, being 26 per cent. for the thirty years, or, stated in numbers, 60,000, 196,000, and 163,000, which adds up to 419,000, an enormous total. (*f*)

When analysed it appears that this total consists of the following proportions of age and sex:—

(*f*) At the same time it is somewhat singular that in 1841 there were fewer persons employed on the land than at present, 1,297,000 against 1,341,000. As has already been said, however, the returns for 1841 cannot be trusted implicitly. Nevertheless it is certain that a great increase (amounting according to these returns to 462,000) must have taken place in the agricultural population between 1841 and 1851. This increase so largely consists of occupied young males and females that the proportions are worthy of particular notice:—

Employed in Agriculture (in Thousands).

	1841.	1851.	Increase.	Per Cent.
Males under 20	165	341	176	106·7
„ over 20	1,074	1,249	175	16·3
Females (all ages)	58	169	111	191·4
Total	1,297	1,759	462	35·6

The figures for agricultural labourers alone are still more striking, showing an increase of 81·5 per cent. and 276·3 per cent. for young males and females respectively, as against only 6 per cent. for males over 20. These figures seem to show either that in 1841 a great number of young people were improperly omitted from the totals of those employed on the land, or that the returns of 1851 were wrong in the reverse direction, or else that so great was the impetus given to this industry during the ten years in question, that all the available members of the labourer's family were for the first time pressed into active employment on the land. It may be remarked that there seems to have been a similar abnormal increase in almost every branch of trade during this period, the result being (if any reliance can be placed on the figures) that $5\frac{1}{3}$ per cent. of the population were transferred from dependents to workers.

Males under 15.....	37,000	out of	109,000,	or	34·0
„ 15—20	31,000	„	232,000,	„	13·3
„ 20—25	53,000	„	198,000,	„	26·7
„ 25—65	185,000	„	923,000,	„	20·0
„ over 65	8,000	„	129,000,	„	6·2
Females under 15.....	11,000	„	13,000,	„	84·5
„ over 15	94,000	„	156,000,	„	60·2
Total	419,000	„	1,760,000,	„	23·8

The loss of the women, over 15 years, corresponds exactly with the numbers added to the occupied in this class between 1841 and 1851, which must point either to an error in enumeration for 1851, or to a sharp reaction from the causes which brought so many women into the fields during the previous ten years. In either case the loss of this part of those supposed to be employed in Agriculture need not be considered. Nor is the loss of the children's work, which may be counted as a gain in another sense, very serious economically. Together these amount to 142,000 out of 419,000, leaving 277,000 in men of all ages from 15 years upwards, or $18\frac{2}{3}$ per cent. of their numbers in 1851.

Against these losses, which are mostly in ordinary agricultural labour, must be set the equivalent of the increased use of machinery, before we can say that less energy is devoted to the cultivation of the soil now than thirty years ago. A new class connected with the application of science to Agriculture has sprung into being, and its increasing numbers point to a change of system, involving improvements, rather than neglect of any kind, as a cause of the decrease in the agricultural population.

The result might be tested in another way if the amount produced now and in 1851 could be compared, but it would be beyond the scope of this paper to make such an attempt; nor can I here consider the result of the increase of pasture over arable land as affecting the number employed. We may feel dissatisfied economically if it should prove that less energy finds useful employment on the land than formerly, or if the soil produces less, or if improvement in these respects does not equal our expectations; or we may regret that we have ceased to be an agricultural community; but it is quite differently that this subject is usually approached. It seems to be assumed by many that the reduction in the proportion of those who live by Agriculture, as compared to those who live by other means, is not only an absolute evil, but necessarily the result of economic error of some kind, and our land system is made responsible. The absorption of surplus agricultural population in other industries is denounced, and the owners of land are described as driving the agricultural population from the soil, to the detriment of the workmen in the towns.

Such views I regard as mistaken and misleading. To an agricultural community fixed to a limited extent of soil, increasing numbers (apart from great changes in the objects and methods of cultivation, which are not now in question) mean increasing poverty and hardship; and to the absorption of any surplus into other trades we largely owe the present contentment and prosperity of rural England. The limits of other forms of industry in respect of growing numbers are less clearly marked, and we have here no evidence to show that those limits have yet been reached in England.

My business, however, is to state the facts as given in the census returns, and these show us that in the last thirty years England has changed from a population about half agricultural and half manufacturing, to one in which Manufacture is double of Agriculture, and we have no reason to suppose that the process of change in this direction is yet ended. This change has been accompanied by an enormous increase in the total population, so that, altogether, support has been found during this period, in other ways than the tilling of the soil, for a new population of $8\frac{1}{2}$ million souls. In this immense figure, those who have failed to obtain subsistence from Agriculture are completely swallowed up.

To state this question more fully, we may go back to the beginning of the present century, and the table below shows that since that time we have had to find new means of support for no fewer than 17 millions of people. In the returns of 1811, 1821, and 1831, only the number of families supported by Agriculture is given. In the figures given below for those years I have reckoned $3\frac{1}{2}$ individuals to a family, rather less than the proportion for the whole population.

TABLE IV.—*Showing Increase of Population since* 1801, *with Changes in Numbers Supported by Agriculture (in Thousands).*

Year.	Population.	Increase.	Total Supported by Agriculture	
1801	8,893	—	1,713	(so returned)
'11	10,164	1,271, or $14\frac{1}{4}$ per cent.	2,695	Estimated from number of families
'21	12,000	1,836, „ 18 „	2,698	
'31	13,897	1,897, „ $15\frac{3}{4}$ „	2,923	
'41	15,912	2,015, „ $14\frac{1}{2}$ „	3,875	Estimated from number of employed
'51*	17,928	2,016, „ $12\frac{2}{3}$ „	4,247	
'61*	20,066	2,138, „ 12 „	4,194	
'71	22,712	2,647, „ 13 „	3,746	
'81	25,974	3,261, „ $14\frac{1}{4}$ „	3,435	

* It is to be observed that the period of slowest increase in the whole population coincides with that of culmination in the numbers supported by agriculture.

About 400,000 persons are stated to have come to England from Ireland, and settled in England, between 1841 and 1851, an exceptionally large number.

It would thus seem, from such figures as we have, that of the total increase of 17 millions, some 2 or $2\frac{1}{2}$ millions had up to 1851 been provided for on the land, but that, of these, $\frac{3}{4}$ million have been since transferred to other industries. How the great bulk of these millions have been provided for, while the numbers supported by Agriculture have remained comparatively so constant, is the question, and whether the process can continue. The yearly increase of population now is greater than ever; can we expect to provide for the additional millions of the future in the same ways, or must some other means be found?

Our picture of what has happened would be much more complete if we could go back to 1801, but we can only do this by drawing largely upon the imagination. We know that Manufacture was then an adjunct of Agriculture, and that a hundred things were made at home for which everyone now goes to a shop; we know that machinery and commerce have changed this, and we see the end of the period of revolution in the amazing figures of change between 1841 and 1851, when the furthest point of unrestricted competition was reached, and when the reaction towards socialism commenced with the Factory Acts; but it is only of the period since 1851 that the census figures enable us to speak with any accuracy.

Before proceeding to other industries, I must refer to some statements which have been widely and publicly made with regard to what is called the "depopulation" of our rural districts; these statements being made to support propositions of violent social change. For instance, Mr. Wallace, the author of a well known work on land reform, in a small book published recently, and called "Bad Times," states that there is a decrease between 1871 and 1881 in the rural population of 309,000, and to this he adds 828,900 for natural increase of same areas, and a further 750,000 for excess of natural over actual increase in other areas where the actual increase was small, making altogether, as he says, "nearly 2 millions of "people who have in the short space of ten years been forced by "the struggle for existence to leave the country for the town;" and he proceeds to explain the increase of our importations of bacon, potatoes, and eggs, by the loss of what these "millions of "labourers and others" no longer produced, although the bulk of them never had any real existence at all as country producers.

To arrive at these results Mr. Wallace assumes that the natural increase in rural districts is not less than "17 per cent. for the decade "as compared to $14\frac{1}{2}$ for the whole population." The actual rate of increase on the whole population for the decade (taken on the figures for 1871) is 15·09; if the 8,135,000 in rural districts have increased 17 per cent. it follows that the 14,557,000 in urban districts

have only increased 14·04 per cent., and there would be a difference between urban and rural increase of nearly 3 per cent.

Mr. Wallace seems also to have assumed that all increasing areas are urban, and to have counted as rural the bulk of urban districts which show a decrease. The figures thus reached by him are very far from correct. It is not very easy to obtain satisfactory statistics on any part of this subject; the summaries provided for England and Wales do not in all cases show the division needed between urban and rural districts, and I have been at some trouble to compile the following table of the birth and death-rates in the town and country:—(*g*)

TABLE V.—*Showing Birth and Death-Rates, Urban and Rural.*

	Mean Population.	Births per 1,000.		Deaths per 1,000.	Natural Increase.	
London and nineteen chief towns	6,854,452	37·211				For the 134 districts and 57 sub-districts comprising the chief towns as given in the registrar-general's reports
Fifty large towns..	2,755,131	36·796	37·117	23·087	14·030	
Small towns	4,501,158	37·673				
Rural remainder...	10,114,530	—	33·133	18·998	14·135	Remainder
Total	24,225,271	—	35·454	—	00·105	Difference in favour of rural

It will be seen from this table that the difference in favour of the rural districts is very slight, being only $\frac{1}{10}$ per cent. in place of $2\frac{1}{2}$ or 3 per cent., as assumed by Mr. Wallace. It is true that the death-rate is higher in the towns, but the birth-rate is also higher to nearly the same extent. The division here made between urban and rural population is the best for which comparative figures of births and deaths are obtainable. The population here called rural includes, however, 1,687,000 people who live in urban sanitary districts with over 3,000 inhabitants, which following the rule laid down in the Preliminary Report, Census, 1881, should be counted as urban. To include these as urban at the average urban birth-rate would reduce the rate for the rural remainder, but as the death-rate would be similarly reduced, I see no reason for supposing that the difference shown in favour of rural increase (such as it is) would not be maintained.

By deducting the population of each urban sanitary district with over 3,000 inhabitants from that of the sub-registration district or districts in which it is contained, a residuum is shown, representing the actual rural population; and again, by deducting the increases and decreases shown for the urban districts from those shown for the sub-registration districts (district by district), a similar division is obtained of the increase and decrease.

(*g*) I desire here to acknowledge the kind assistance I have received in preparing this table from Major-General Robert Lawson, Inspector General of Army Hospitals.

The results so obtained did not agree exactly with the totals given in the "Census Report," p. 10, and the difference is explained by changes of boundary. The report says: "The urban "sanitary districts are of such recent creation and were often con- "structed with so little reference to previously existing boun- "daries, that it is impossible in many cases to ascertain what was "the precise population at the date of previous censuses, and thus "to calculate the comparative growths of the urban and rural "elements in the country." A comparison of the figures obtained district by district with the corrected figures in total showed a difference of about 200,000 due to changes of boundary; that is, this number of people, counted as rural in 1871, were by alteration of boundary counted as urban in 1881. This is a change difficult to deal with,—it is, however, not of the character of an "exodus," and I have not included it in the figures given in the subjoined table. In this table I have separately stated those districts whether urban or rural the population of which has increased or decreased so little so as to have remained practically without change.

TABLE VI.—*Showing Influx and Exodus, Urban and Rural.*

[In thousands.]

	Population.		In-crease.	De-crease.	Per Cent.	Natural In-crease.	Influx.	Exodus.	Net.
	1871.	1881.							
URBAN.									
Increasing areas	13,126	15,847	2,721		+20·73	2,036	687		
Stationary areas	549	549				77		77	
Decreasing areas	902	857		45	− 4·99	124		169	
									Influx
Total urban*..	14,577	17,253				2,237	687	246	441
RURAL.									
Increasing areas	3,263	4,139	876		+26·54	523	353	187	
Stationary areas	1,321	1,321				187		771	
Decreasing areas	3,551	3,261		290	− 8·17	481			
									Exodus
Total rural†...	8,135	8,721				1,191	353	958	605
Total population	22,712	25,974	3,597	335		3,430	Emigration		164
Deduct decrease from increase			335	Balance of emigration		164			
Net increase			3,262			3,262			

* The difference between these figures and those given in the general report of census, 1881 (p. 10), lies in the population of urban sanitary districts under 3,000 inhabitants (see p. 9 of report), and some which, being only just 3,000 in 1881, I have also omitted from my account of the urban population.

† The 164,000 taken as the "balance of emigration" represents the excess of those who have left over those who have entered England and Wales.

It will be seen that the exodus from rural (or non-urban) districts amounts to 605,000 instead of two millions, and that the influx into the towns is less again than the total exodus from the rural districts by reason of the loss by emigration, finally reducing Mr. Wallace's two millions to 441,000.

The pressure of population is always spoken of as being worst in the large towns, but if the increase of population in urban districts be analysed, we find that it is not on the large towns that it mainly falls.

TABLE VII.—*Showing Increase in Urban increasing Areas.*
[In thousands.]

	1871.	1881.	Increase.	Per Cent.
Towns of over 50,000 inhabitants	7,322	8,591	1,269	17·33
,, 30,000 and under 50,000 inhabitants	1,183	1,403	220	18·60
Towns of over 20,000 and under 30,000 inhabitants	781	964	183	23·43
Towns of under 20,000 inhabitants	3,636	4,889	1,253	34·47
Population in increasing areas	12,922	15,847	2,925	22·64

Note.—This table is vitiated by the error of 200,000 due to changes of boundary already referred to; but even if the whole of this transfer of population be supposed to apply to towns under 20,000, it would still leave the rate of their increase 26·80.

Showing that on the contrary it is the largest towns that have the smallest increase, and that the percentage increases as the size of the town decreases. And an analysis of the influx itself gives a similar result.

It must be remembered also that the influx consists in part of Scotch, Irish, Germans, and others, whose numbers show an increase of 17,000 for London, and 6,000 for the nineteen chief towns. The actual net influx from the country into London and the nineteen chief towns appears not to have been more than one-seventh of the total increase in their population. So small a matter, comparatively, surely cannot be the source of such social danger as has been feared.

Many more no doubt have come into the towns than appear by this method of computation, but others have left, and the difficulties connected with poverty and overcrowding lie partly in the fact that there is a natural deposit in great towns of those who are too helpless to get away—rather in this than in the abnormal increase of population or in the numerical competition of country bred labour.

It will be seen from Table VI given above that of non-urban districts, areas containing 4,139,000 inhabitants have increased no

less than 26·54 per cent. (or very much more than the large towns), areas with 1,321,000 have remained without material change, while areas with 3,261,000 have decreased, but the decrease being much less than the increase, there is a net increase of non-urban population to the extent of 586,000. This is certainly not to be described as " depopulation " taken all round.

To show what areas have increased and what decreased, I have taken them county by county, and give the results in an appendix, grouping the counties, so far as possible, while still preserving distinctive characteristics, and to this table I refer. I am far from wishing to depreciate the importance, or even danger, of the aggregation of population under our industrial system. My wish only is to point out certain very erroneous views on the question which are now prevalent, and to assist in some small way in the elucidation of the subject.

The fact to which attention needs to be drawn is that the greatest influx into urban areas is into comparatively new places, while the next greatest movement is that into the country districts surrounding the present centres of population, and especially adjacent to the new urban districts. These rapidly increasing non-urban places are doubtless urban places in embryo. The increasing population takes an industrial shape and tends to agglomerate. It shows every sign of being attracted by employment, not driven by want of employment, though naturally both causes are at work.

Besides this, there is a suburban fringe of population, not industrial but residential, carrying with it many who live by supplying the wants of these residents, and to this must be added a very remarkable increase in the population of sea side resorts all round the coast.

Purely agricultural districts have lost population largely, but otherwise there has been all over the country a fair distribution of the increasing millions, and everywhere new occupations have been found, not only for the increase, but also for those who have failed to find occupation in agriculture.

It is unfortunately impossible to trace the occupations, other than agriculture, of the non-urban population. The census gives the occupations of the whole people, and of urban districts with over 50,000 inhabitants, but stops there. If a single table were added to give, in aggregate, the occupations of the population of small urban districts, we should be able, by casting out the remainder from the total, to arrive at those of the rural population, also in aggregate, and I venture to think that this additional table would add very greatly to the value of the others. As it is we have no information.

We cannot therefore say what may be the proportion which local industry can claim among the new dwellers in non-urban districts, nor what the industries are. It might prove that the new population is very largely residential, or connected with the immediate wants of those who are merely residents; but I believe it would be found that certain manufactures seek fresh air and pure water, low rates and other rural advantages, and by their success provide new and healthy centres of employment; and that the want of employment in large towns is in part due to the removal of industries into country or quasi country quarters. Evidence tending to support this view was brought before the recent Mansion House inquiry into the causes of permanent distress in London.

Resuming our examination of Industry in the table on p. 324, we come to the second branch of the production of raw material,

Fishing, which has prospered considerably. The whole numbers involved are not large, but those employed have increased 77 per cent., or twice as fast as the total occupied population. The increased numbers employed in this way count up to 13,000, and there seems to be no reason why progress in this direction should stop short; on the contrary, a better organisation of the distribution of fish might largely increase the scope of the trade, and it is encouraging to see the good results of the last decade.

Mining, which has also prospered, has increased 68 per cent. during the thirty years, against an increase of 39 per cent. in the total employed population. The total numbers are large, those engaged in this industry in 1881 being 227,000 more than in 1851. Nine-tenths of this increase is due to coal; copper and lead mining have greatly fallen off, and tin has decreased slightly. Iron shows a moderate increase, and the rest is made up of quarrying and brick making, which are included in the same class, and which both show a large increase. The decrease lies in metals of such value as can admit of carriage from places at a distance, where they are dug up more readily than in England; the increase lies in those of so low a value compared to bulk that the cost of carriage provides a natural protection.

Quarrying and brick making may be expected to grow with the general prosperity. It is as to the coal trade that serious questions arise. The output has enormously increased from about 50 million tons in 1851, to about 130 millions in 1881, (*g*) while those employed in raising it have also more than doubled in number. Little comparatively is exported for sale, the greater part being used at home or burnt by outward bound steamers, and it is to a

(*g*) The increase continued up to 1883, but since 1883 there is a decrease in the output.

continuously growing consumption in these ways that we have to look.

We now come to the backbone of the industrial organism we are studying, namely Building and Manufacture, which I venture to bracket as being alike the turning of raw materials into things serviceable, and we find that this remains nearly constant at 38 per cent. of the employed population.

The numbers engaged in *Building* have increased 73 per cent., as against 39 per cent. for the whole employed population, the addition to the total being 335,000, and well maintained up to 1881.

Manufactures, taken as a whole, have increased in the thirty years 30½ per cent., or 8½ below the percentage of average increase for the whole employed population, and this comparative falling off is progressive. Nevertheless we have here found support for about 2 millions out of the 8½ millions for which, in all, fresh means of support have been obtained since 1851, whilst the deficiency in proportion to population has been nearly made good by the increasing proportion employed in Building. It must not be forgotten also that, measured by production, our manufacturing energy has increased far beyond the increase of the whole population, and some economic mal-adjustment may be fairly assumed if the community generally can be shown not to share in the benefit.

Looking into the various sections of Manufacture, we shall not be surprised to find a great increase in those engaged in the construction of machinery and tools, which has risen from 1·2 per cent. of the employed population in 1851 to 1·9 per cent. in 1881, or in numbers from 100,000 to 224,000. Metal workers have similarly gone up from 293,000 to 477,000 (or 63 per cent.), the iron and steel trades having doubled their numbers. Smaller branches, like the earthenware, coal, gas, chemical, paper, floor cloth and waterproof manufactures, have all kept pace with the growth of population, and have in some cases increased 100 to 150 per cent. It is in the greatest of all our manufactures, the textile industries, that the decreasing proportion as compared to population shows itself. In 1851 these industries with their natural ally, dyeing, found work for 11·1 per cent. of our workers, but in 1881 only 8·1 per cent. were so employed. As regards actual numbers there was an increase of 27,000 or 2·9 per cent. Taking the cotton trade by itself, we find the increase has not been far behind that for the whole occupied population, 31 per cent. as against 39 per cent., but silk on the other hand shows a decided decline of more than 50 per cent., operating steadily over the whole period. The workers in woollen fabrics have also decreased upon the whole, but the figures show a peculiar variation,

1851, 258,000; 1861, 229,000; 1871, 245,000; 1881, 234,000. Flax and linen manufacture has strikingly fallen off from 26,000 to 12,000, and is insufficiently compensated by the increase in hemp and jute. Some consolation may be obtained, however, by noting the flourishing condition of these industries in Scotland.

The workers in dress have increased in number by 85,000 during the thirty years, but nevertheless the proportion to population is less than in 1851. The cause of these comparative decreases is to be found in the greatly increased use of machinery, which is witnessed by the figures of the unspecified section of manufacture (consisting mainly of the "workers of machinery," who did not specify the trade for which their machinery was used, perhaps only as the driving power), which has risen from 13,000 to 142,000, or from 0·2 per cent. to 1·2 of the employed population. This increase may perhaps largely be set against the decrease in textiles and dress.

Food, drink, and smoking remain constant at 1·6 per cent. of the employed; and those branches of mechanics most nearly connected with art, as watch and instrument making, printing and bookbinding, show large increases.

The third division of Industry comprises those engaged in the distribution of merchandise (finished or otherwise), and has two branches, called here Transport and Dealing.

Transport (which includes also all forms of travel) has increased enormously. In 1851 this industry employed 345,000 persons; in 1881 the figures had risen to 654,000, or by nearly 90 per cent. The analysis of this class points to changes in the methods and possibilities of industry which would repay separate study. As might have been expected, the greatest increase is in the railway employés, from 25,000 to 139,000, but navigation and docks have fully kept pace with the advance of population. Most remarkable, therefore, under the circumstances, is the very large increase of persons engaged in conveyance by road. Side by side with the gigantic strides which railways have made, there has been an addition of 195,000,(*h*) or 60 per cent. to the numbers of those engaged in other forms of transport. Of this increase road conveyance claims 94,000, or an advance of 127 per cent. on the numbers of 1851.

Dealing has increased 69 per cent., as against the 39 per cent. increase of the total employed population, a change due largely to the multiplication of small shopkeepers and street sellers. The actual numbers are: in 1851, 547,000; in 1881, 924,000; and the

(*h*) The number of those properly in this class who have called themselves private servants (see note p. 324) are not included here, and if added would make the figure still more striking.

increase is very regular for the several decades. It should be stated, however, that it was in not a few cases impossible to separate accurately the dealers from the manufacturers. This however will have had but very little effect on the comparative percentages, as the possibility of error lies in small compass.

The last division of Industry, called here *Industrial Service*, ought not properly speaking to contain any besides those engaged in banking, insurance, and accounts, but the returns of labour are so made and arranged that I have had to include with them in the same division (though under a separate heading) all general labour, or labour not allotted to any particular trade, and of this class of labour there was a remarkable increase between 1861 and 1871; but the returns are not to be trusted entirely, and the most we can say is that a low class of more or less casual labour appears to have increased since 1861 beyond the average increase of the population. Information on this subject would be very valuable, but it is not to be found in the census returns, where skilled and common labour are inextricably confused. The other section covers all commercial clerks, accountants, and bankers; and the great and continuous increase here from 44,000 in 1851, to 67,000 in 1861, 119,000 in 1871, and finally 225,000 in 1881,(*i*) points even more forcibly than is the case with transport to a revolution in the method and management of industry, the effect of which must be far beyond the single fact we are now noticing.

The labour section may be taken as devoted mainly to the service of Building, Manufacture, and Transport, as Dealing affords little employment for common labour, and Agriculture, Fishing, and Mining return their own; but every class of industry shares in the benefit of the commercial system maintained by bankers, accountants, and clerks.

The picture we have now completed of the industrial development of England since 1851 and her apparent position in 1881 is, on the whole, one which may be regarded with satisfaction. Nor could any changes since 1881 seriously affect this result. Every line of it shows vitality, and an innate power of meeting changes of circumstances, which seem to give promise of continued prosperity.

2. *Scotland.*

The growth of the population of Scotland ($6\frac{3}{4}$, $9\frac{3}{4}$, and $11\frac{1}{2}$ per cent. for the three decades) has been slower than that of England, and the proportions engaged in each main division of industry are somewhat different, but the points of similarity are much more

(*i*) The increase in this decade is partly due to a change in the method of enumeration.

noticeable than the points of difference, as the subjoined table will show. We see a similar falling off in the proportion connected with Agriculture, a similar constancy in those connected with Building and Manufacture, and a similar increase under other heads :—

TABLE VIII.—*Showing Occupations of the People of Scotland by Percentage.* (*k*)

Occupations.	1851.		1861.		1871.		1881.	
Agriculture, &c.	22·7		20·1		17·3		14·2	
Fishing	1·5	28·2	1·7	26·3	1·8	24·2	1·9	21·1
Mining	4·0		4·5		5·1		5·0	
Building	5·2		5·9		6·3		6·7	
Manufacture	36·5	41·7	35·0	40·9	34·7	41·0	33·8	40·5
Transport	3·6		4·1		4·9		5·2	
Dealing	5·6	9·2	6·5	10·6	7·1	12·0	7·5	12·7
Industrial service	—	3·8	—	3·9	—	4·5	—	6·2
Industry	—	82·9	—	81·7	—	81·7	—	80·5
Public and professional service	3·5		3·9		3·8		4·2	
Domestic service	10·5	17·1	12·0	18·3	10·7	18·3	11·1	19·5
Others	3·1		2·4		3·8		4·2	
	—	100·0	—	100·0	—	100·0	—	100·0

The minor similarities are also very noticeable, and although the figures in the appendix may provide materials for many interesting inquiries, either of special interest to Scotland, or of

(*k*) With a proportion of dependents added to each class, on the same basis as for England, the table will read as follows :—

TABLE VIIIa.—*Showing Means of Support of the People of Scotland by Percentage* (*Estimate*).

Occupations.	1851.		1861.		1871.		1881.	
Agriculture, &c.	23·8		21·7		18·0		14·0	
Fishing	2·2	31·0	2·4	29·9	2·6	27·1	2·5	22·9
Mining	5·0		5·8		6·5		6·4	
Building	7·8		8·3		8·7		9·3	
Manufacture	32·0	39·8	30·7	39·0	31·0	39·7	30·9	40·2
Transport	4·9		5·6		6·4		6·7	
Dealing	6·2	11·1	7·0	12·6	7·4	13·8	7·7	14·4
Industrial service	—	5·4	—	5·5	—	6·1	—	8·0
Industry	—	87·3	—	87·0	—	86·7	—	85·5
Public and professional service	4·8		4·9		4·6		4·8	
Domestic service	5·1	12·7	6·0	13·0	5·6	13·3	6·5	14·5
Others	2·8		2·1		3·1		3·2	
	—	100·0	—	100·0	—	100·0	—	100·0

comparison between England and Scotland, it is unnecessary to pursue them here. The figures show that the two countries share each other's fortune, and make the union of feeling between them easy to understand.

But it is far different with the sister island.

3. *Ireland.*

If the picture given of the condition of agriculture in England and Scotland is gloomy, that of the whole condition of Ireland is much more so, and needs a treatment far more exhaustive than can here be pretended to.

In adopting the method already employed for England and Scotland, it must be remembered that in place of increasing, the whole population has decreased. The amount of this decrease from 1841 to 1881 is three millions out of eight millions of persons, and is made up as follows:—

From 1841 to 1851	1,623,000		
„ '51 „ '61	753,000		
„ '61 „ '71	386,000	3,000,000	(*l*)
„ '71 „ '81	238,000		

The general picture at each period stands as under: 1841 is taken as the starting point, because it is necessary to begin from before the famine of 1846–47, and the returns of 1841 for Ireland appear to be sufficiently correct:—

(*l*) The preceding increase of population had been:—

From 1821 to 1831	965,000
„ '31 „ '41	408,000

TABLE IX.—*Showing Occupations of the People of Ireland by Percentage.* (*m*)

Occupations.	1841.		1851.		1861.		1871.		1881.	
Agriculture, &c.	50·9		48·4		42·9		40·7		41·1	
Fishing	0·2	51·3	0·4	49·2	0·3	43·6	0·4	41·4	0·5	42·0
Mining	0·2		0·4		0·4		0·3		0·4	
Building	2·0		2·0		2·4		2·2		2·4	
Manufacture.....	27·3	29·3	22·8	24·8	20·7	23·1	19·5	21·7	16·0	18·4
Transport	0·5		1·4		1·8		2·1		2·2	
Dealing	2·6	3·1	3·6	5·0	4·1	5·9	4·6	6·7	4·8	7·0
Industrial Service...	—	1·2	—	2·3	—	7·5	—	7·5	—	6·7
Industry	—	84·9	—	81·3	—	80·1	—	77·3	—	74·1
Public and Professional Service..	*1·6		2·2		3·7		4·3		5·0	
Domestic Service	9·4	15·1	†9·4	18·7	13·3	19·9	15·2	22·7	18·0	25·9
Others	4·1		7·1		2·9		3·2		2·9	
	—	100·0	—	100·0	—	100·0	—	100·0	—	100·0

* Army and Navy were omitted from the census of Ireland in 1841 and 1851.

† It is probable that Domestic Service should be 1 per cent. more in this year, and farm service (Agriculture) 1 per cent. less. The returns point to confusion in this respect.

The numbers employed in Agriculture have decreased since 1841 by 858,000, out of a total of 1,844,000, and those who may perhaps be counted as supported by Agriculture by $2\frac{1}{2}$ out of

(*m*) With dependents apportioned to each class, the following are the figures:—

TABLE IXA.—*Showing Means of Support of the People of Ireland by Percentage* (*Estimate*).

Occupations.	1841.		1851.		1861.		1871.		1881.	
Agriculture, &c.	62·1		55·7		52·1		48·7		49·5	
Fishing	0·3	62·7	0·5	56·7	0·4	53·0	0·5	49·6	0·6	50·5
Mining	0·3		0·5		0·5		0·4		0·4	
Building	2·8		2·6		3·3		3·2		3·4	
Manufacture.....	18·3	21·1	16·2	18·8	15·2	18·5	14·3	17·5	12·4	15·8
Transport	0·8		1·9		2·4		2·8		2·9	
Dealing	2·4	3·2	3·3	5·2	3·9	6·3	4·4	7·2	4·5	7·4
Industrial Service...	—	1·6	—	3·0	—	8·0	—	8·9	—	8·2
Industry	—	88·6	—	83·7	—	85·8	—	83·2	—	81·9
Public and Professional Service..	*1·8		2·5		4·6		5·1		6·0	
Domestic Service....	4·2	11·4	†4·4	16·3	6·4	14·2	7·6	16·8	8·8	18·1
Others	5·4		9·4		3·2		4·1		3·3	
	—	100·0	—	100·0	—	100·0	—	100·0	—	100·0

* See note (*) to Table IX.

† „ (†) „

5 millions. Nor is this all, for these reductions being proportionately greater than those for the whole population, the *percentage* employed in or supported by Agriculture has decreased as well as the total numbers.

The land in England and Scotland employs as many, and probably supports nearly as many, as it did in 1841, and meanwhile other productive industries support the bulk of our great increase of population. In Ireland, on the other hand, not only does the land fail to support half of those it once in some fashion maintained, but other productive industries (*e.g.*, Building and Manufacture) are even worse off, and, like Agriculture, show it both in numbers and percentage; those engaged in Building and Manufacture (taken together) being 10·9 less in percentage, as well as 626,000 fewer in number, than in 1841.

It is when taken together that these facts appear so serious as evidence of decadence. It might be well that fewer people, or that a smaller proportion of the population, should attempt to obtain a living from the land; and, on the other hand, the abandonment of industries for which the country has no advantages might be no loss, whether accompanied by a general loss of population or not; and, although a painful process, a general reduction in numbers of population by death and emigration, may finally conduce to the benefit of those who remain; but if all these things happen at once —if a reduced population finds less work to do per man—it is hard to obtain any encouragement from the figures. The best that can be hoped is that some ultimate advantage may lie at the end of a road not yet all trodden.

Nevertheless, the view is commonly held that in general well-being Ireland has enormously improved since the famine. No evidence of this improvement is to be found in the occupation returns, which, on the contrary, point to a demoralisation of industry likely to be the cause, as well as consequence, of poverty and waning trade, and certain to be the source of political discontent. I know that figures may be, and are, drawn from bank deposits and other returns which seem to tell a different story. I shall not attempt to reconcile this conflict of evidence. To do so would be beyond the scope of this paper. I can only state the conclusions to which the census returns point.

There may be much that is delusive in the rather golden picture of the industrial condition of England and Scotland that has been given; the tide may have turned since 1881, or even before, and the number of the unemployed or partly employed in each trade, whose lack of employment is not considered in our occupation returns, may make the reality very different; but in the picture of desolation which the Irish figures afford there seems

little room for delusion. When industries decay, those who have been supported by them cling to their employment as long as possible, and what in England *may* have happened—that the numbers given include many who no longer find a living in what they profess to do—has certainly occurred in Ireland. In such a case the facts are assuredly worse than the figures disclose.

The subject may be taken from another side. It will be seen that the percentage of the Irish population actually returned as engaged in productive industry (or Agriculture, Fishing, Mining, Building, and Manufacture) has fallen from 80·6 per cent. in 1841 to 60·4 per cent. in 1881, or progressively thus :—

1841.	1851.	1861.	1871.	1881.
Per cnt. 80·6	Per cnt. 74·0	Per cnt. 66·7	Per cnt. 63·1	Per cnt. 60·4

the percentage of those otherwise engaged having risen in proportion from about 20 per cent. to about 40 per cent. I shall try to show what proportion of this increase in non-producers offers any compensation. It is divided thus :—

	Per Cent.
Increase in Transport	1·7
„ Dealing	2·2
„ Industrial Service	5·5
„ Public and Professional Service	3·4
„ Domestic Service	8·6
„ Property Owning	0·6
	22·0
Decrease in Indefinite	1·8
	20·2

The increase under Transport is connected with improvements in commercial system, and is not to be objected to. Of that under Public and Professional Service, which is very considerable, it is impossible to say much without entering upon ground more political than economical. The items in detail are as follow :—

	1841.	1881.
Administration	6,000, or 0·2 per cent.	11,000, or 0·5 per cent.
Army and Navy	*— —	40,000, „ 1·7 „
Police and Prisons	11,000, „ 0·3 „	18,000, „ 0·8 „
Law	5,000, „ 0·1 „	5,000, „ 0·2 „
Medicine	7,000, „ 0·2 „	7,000, „ 0·3 „
Art and Amusement	4,000, „ 0·1 „	3,000, „ 0·1 „
Literature and Science	— —	1,000 —
Education	17,000, „ 0·5 „	22,000, „ 1·0 „
Religion	7,000, „ 0·2 „	14,000, „ 0·6 „
	57,000, „ 1·6 „	121,000, „ 5·0 „

* The soldiers in Ireland were omitted from the census 1841.

We may compare these with the parallel figures for Scotland, which are as follows :—

	1841.	1881.
Administration	4,000, or 0·4 per cent.	10,000, or 0·6 per cent.
Army and Navy	5,000, „ 0·5 „	8,000, „ 0·5 „
Police and Prisons	2,000, „ 0·2 „	4,000, „ 0·2 „
Law	6,000, „ 0·5 „	7,000, „ 0·5 „
Medicine	6,000, „ 0·5 „	10,000, „ 0·6 „
Art and Amusement	2,000, „ 0·2 „	5,000, „ 0·3 „
Literature and Science	— —	1,000 —
Education	7,000, „ 0·6 „	19,000, „ 1·1 „
Religion	3,000, „ 0·3 „	6,000, „ 0·4 „
	35,000, „ 3·2 „	70,000, „ 4·2 „

The increase in Ireland, though large, does not (if the Army and Navy be omitted) bring the percentage for 1881 so high as that of Scotland, or by any means so high as in England, and, except for the item of Police and Prisons, there is not much to be objected to.

It is otherwise with the increases under all the other heads. It is impossible to account satisfactorily for the increase which is to be found in the numbers as well as percentage of the dealers —those who live by buying and selling. This increase cannot be traced to any improved system of distribution, nor can we account for it, as we may in England and Scotland, by the fact that increasing production or greater wealth increases the volume to be distributed, and that our foreign trade has made of Great Britain a shop to which all the world come to buy. It seems evident that the multiplying of this class in Ireland can only be taken as a sign of want of more useful employment.

In *Industrial Service* the commercial portion of the class was 12,000 in 1841, and 16,000 in 1881; an increase which, like that in Transport, may be satisfactory, as pointing to improvement of system, but this is not so with the main increase in this class—that of general labourers, from 31,000 in 1841, to 144,000 in 1881.

These labourers (who no doubt to some extent belong to the agricultural class) can hardly be added to the ranks of productive industry. They take their origin from the destitute class who appear in the return of 1851 (after the famine) as "indefinite," and who, dropping out of this unnamed position, appear in 1861, and continue in 1871 and 1881, as "general labourers." It is true that this class is, relatively, almost as considerable in England and Scotland as in Ireland, but there is a great difference in the fact that in the former countries they have always been a numerous order connected with the manufacturing and building industries,

whereas in Ireland they have no such basis of support, and sprang into existence, not from any need of their services, but as the outcome of agricultural and industrial distress and charitable doles on an enormous scale.

Domestic Service has risen with a steady progression from 9·4 per cent. in 1841, to 18·0 per cent. in 1881. It may perhaps be reasonable that the loss of a large poor population should increase the proportion, to the whole, of those classes who can afford to keep servants; but this would not account for the large positive increase in the total number of servants (85,000), nor for the extraordinary fact that the proportion of servants to population in so poor a country as Ireland is considerably higher than it is in England, and as much as $3\frac{1}{4}$ per cent. higher (comparing the percentage) than it is in Scotland. And it must be remembered that it was not so in 1841, when the percentage for Ireland was much less than for England and Scotland. The figures are as follows, taking the proportions first to the employed, and second to the whole population :—

	On the Employed.		On the whole Population.	
	1841.	1881.	1841.	1881.
	Per cnt.	Per cnt.	Per cnt.	Per cnt.
England	16·2	15·7	6·8	7·1
Scotland	12·2	11·1	5·2	4·9
Ireland	9·4	18·0	4·2	8·2

What is the explanation of these remarkable figures? It would be simplest to show that they are incorrect, but apart from some difference in the method of tabulation (alluded to in the Census Report for 1881, but not specified), I have found no loophole of escape, and the comparison of successive decades shows how gradually the position of Ireland was reversed, from being the most economical to being the most extravagant in Domestic Service. The only explanation that suggests itself is that servants are more numerous where poverty makes service cheap.

The slight increase in the percentage under Property Owning would also be unobjectionable, if any conclusion could be fairly drawn from the figures, but, as we have already seen in the case of England, the returns under this head are entirely delusive.

Against these increases has to be set off a decrease in the Indefinite class, which is returned as 122,000 in 1841, against 38,000 in 1881.

To bring the figures roughly together, so as to show what portion of the increase of non-producers may be satisfactory or not unreasonable, and what portion must, as I think, be considered

unsatisfactory, I submit the following table. The difference in condition and industrial utility between the small dealers and general labourers and the undefined class is probably very slight, and for this purpose they may be counted together:—

TABLE X.—*Showing Transfer of Employed from Productive to Non-Productive Industry between* 1841 *and* 1881.

	Per Cent.		Per Cent.
Decrease in those employed directly in productive industry	20·2	Increase in those employed by non-productive industry:—	
		(Satisfactory or not unreasonable)—	
		Transport	1·7
		Commercial Class	0·4
		Public and Professional Service	3·4
		Property Owning	0·6
			6·1
		(Unsatisfactory)—	
		Domestic Service	8·6
		Dealing and general labour (less decrease in Indefinite class)	5·5
			14·1
	20·2		20·2

Although this calculation must be accepted with very great reserve, it may yet give us a fair idea of the extent to which Ireland, besides its great decrease of numbers, has also deteriorated in the quality of work performed by those who remain. It shows us that since 1841 more than 14 per cent. of the employed population have been transferred from direct production to occupations which can at best add little to the wealth of the community.

In confirmation of this, if we turn to the details of those who figure under the head of Manufacture, we find only one occupation which has increased considerably in percentage while on the whole there has been so great a decrease; this is under the heading Dress; and going into further detail we find that in Dress it is the shirtmakers only who have increased in numbers, viz., from 47,300 to 71,000; so that once more it is only in the last refuge of destitute women that we find any increase.

A detailed review of productive industry in Ireland, to which we will now return, will show us more closely where the falling off has occurred.

The decrease in those employed in *Agriculture*, though affecting each branch, shows itself, of course, mainly in the labourers and farm servants, which have fallen from 1,326,000 in 1841, to 329,000 in 1881, or 75·2 per cent. The decrease in farmers, from 471,000

to 442,000, is only 6·2. The figures in regard to those engaged about animals, which show a large decrease, are fallacious, because a great number of persons who were in the earlier census classed as herds, have in 1881 been counted with farm servants, which would tend to make the truth as to the farm servants even worse than appears.

Fishing and *Mining* are small industries in Ireland. The former has increased from 9,000 to 11,000, or from 0·2 per cent. to 0·5 per cent. of the employed population; Mining has fluctuated considerably at each decade, but ultimately shows a slight falling off in bulk. In percentage, however, it has risen from 0·2 per cent. to 0·4 per cent.

In 1841 there were 72,000 persons occupied in *Building;* in 1881 there were but 56,000; nevertheless the percentage to the total employed population has increased by 0·4 per cent.

The total employed in *Manufacture* has dropped from 989,000 to 379,000 (or 61·7 per cent.), and the percentage to the whole occupied population from 27·3 per cent. to 16 per cent. Machinery and tool making employs a very much smaller proportion of workers than do these trades in England and Scotland, but the numbers have risen slightly, and now form 0·2 per cent. of the employed. The way in which Ireland has failed to share in the growing prosperity of the other portions of the kingdom is, however, strikingly exemplified in these trades, for whilst the great development of machinery during the last forty years has enabled England and Scotland combined to add nearly 200,000 to their number of workers in this branch, Ireland during the same period has found a new opening in this direction for barely 1,000 persons. This will be found to throw a cross light on our next point (textile fabrics), where more strongly than elsewhere we find the evidence of industrial decay.

It appears that in 1841 696,000 persons were enumerated as employed in textile and dyeing industries. Since then the decline has been startling—to 424,000 in 1851, 275,000 in 1861, 218,000 in 1871, and finally to 130,000 in 1881. In the meantime England, starting with only 604,000 in 1841, has progressed to 962,000 in 1881. These figures include spinning, and it is to the loss of this hand industry, which passed to English machinery, that the reduction is largely to be traced. There is no body of women similar to the Irish spinners to be found in the English returns of 1841, though there is a large number of women weavers who fall away later. It may be that domestic spinning existed in England and was not returned at all; or it may be that a larger share of this industry fell to Ireland. At any rate, we have the singular fact that in 1841 Ireland returns more workers in this section (textiles)

than England, but in 1881 not one-seventh of the number. If the spinning industry was spread over the country, and an aid to every family whose men only were needed on the land, it would go some way to explain a wreck of prosperity.

The figures for textile manufacture show a very general decline, to which even flax and linen cannot be considered exceptions.(*n*)

III.—*Suggested Improvements in Census Returns.*

I have ventured to complain in some degree of the returns furnished by Government; but I desire to bear witness to the excellence of the reports which accompany each census, and especially that for 1881, which is a model of its kind. Too much, in fact, is left to the report, and it is not desirable that tables published separately from, and previous to, the report should not

(*n*) The detailed facts as to the textile industries of Ireland are as follows:—

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Woollen cloth manufacture	80·7	45·9	16·6	20·4	7·1
Worsted and stuff „	0·1	0·1	0·1	0·1	0·1
Flannel manufacture	23·0	—	—	—	—
Capet and rug manufacture	—	0·3	0·1	0·1	0·1
Woollen knitters	—	35·6	19·7	—	—
Others, in wool	—	—	—	—	0·3
Cotton and cotton goods manufacture	6·0	16·1	9·8	7·0	3·9
Silk and silk goods manufacture	0·6	0·6	0·5	0·8	0·6
Ribbon manufacture	0·2	0·1	—	—	—
Crape, gauze, shawls, and fancy goods (textile) manufacture	0·9	64·0	41·7	18·5	8·1
Weavers, spinners, and factory hands (undefined)	441·0	86·0	101·6	103·3	24·0
Flax, linen, and damask manufacture*	135·3	124·9	73·8	55·6	79·1
Canvas and sailcloth manufacture	—	0·2	0·2	—	0·1
Sacking and bag „	—	—	0·1	0·2	0·2
Hemp, jute, and cocoa-fibre manufacture	—	—	—	—	0·4
Rope, twine, and cord makers	1·1	1·3	1·1	1·0	0·9
Net makers	1·1	0·9	0·4	0·4	0·2
Mat „	0·2	0·2	0·3	0·1	0·2
Lace manufacture	1·8	2·2	1·5	1·0	0·7
Embroiderers	—	41·4	3·9	5·6	1·5
Thread manufacture	0·2	0·1	0·4	0·4	0·2
Tape „	—	—	—	—	0·2
Trimming „	—	0·1	—	0·9	0·1
Artificial flower makers and others	—	—	—	—	0·5
Dyeing	3·8	3·7	3·3	2·2	1·5
Total of textiles and dyeing	696·0	423·7	275·1	217·6	130·0

* The apparent increase under the heading of "Flax and linen" between 1871 and 1881 is negatived by the striking decrease in "weavers, spinners, " and factory hands (undefined)," of whom a large proportion must have been employed in the flax and linen industries.

fully carry their own explanation with them. I certainly do not under-estimate the difficulties with which the authorities have had to contend, hampered as they have been by the (in my view) unwise decisions of their predecessors.

My own task has been much simpler; I was free to choose any plan of arrangement which the figures as a whole would bear. For that which has been chosen may be claimed the advantage of breadth. There is no civilized society whose members may not be divided in the way that those of the three kingdoms are divided here: into those who produce raw material in various ways, and those who prepare it for use; those who distribute what is produced, and finally those who in other ways serve the community. On such a basis all nations could be compared or contrasted, and a scientific basis might be found for the great questions of the relation of numbers to subsistence, and of policy as to home and international trade, which at present can only be treated theoretically.

In conclusion, I desire to go beyond the subject of occupations, and to suggest with regard to census returns in general, and with a view to international uniformity, that the tables in every census should be divided into international, national, and special schedules, answering to the three distinct purposes for which they are required. It is undesirable to carry uniformity beyond what is needed. Every nation has its own peculiarities, and needs regular tables of its own besides such as may be drawn on an international plan. It is to be feared that mere uniformity of system, however well imagined, would crush life out of the figures, and without some liberty of action there would be little zeal; and besides this, there is room for special inquiries without thought of recurrence, and therefore without need of uniformity.

It must not be forgotten that all census statistics carry really a twofold value, first for the picture they give of the existing state of things, and second for the indication of the march of events which can be obtained by comparison with similar returns taken previously, or to be taken later.

If inquiries are made again and again, the first value may be forgotten; but it is the main staple of all new inquiries, and therefore room should be allowed in the system adopted for the treatment of special subjects.

Inquiries into special subjects, undertaken once for all, and never intended to be repeated, can claim, and receive, a special amount of attention; and, once made, would give light and life to the figures of every succeeding census.

No census could undertake many, but each census might undertake one or two in addition to the uniform tables which, on the other hand, should be reduced and simplified as much as

possible. For example, referring to the Scotch census for 1881, it seems unnecessary to occupy 161 pages with the civil condition of the population in each registration district. It is difficult to conceive any statistical value in such minute facts as the proportion of married, unmarried, and widows, with their several ages, in places whose whole population in many cases is less than 100. I will give one such in full: I learn that Megget in the county of Peebles has 90 inhabitants, as under:—

Population of Megget, in the County of Peebles, Scotland.

	Total.	Ages.								
		0—15.	—20.	—25.	—30.	—35.	—40.	—45.	—50.	—55.
Unmarried—										
Males	44	25	3	5	6	1	1	—	1	—
Females	25	15	5	2	—	1	1	—	—	—
Married—										
Husbands	10	—	—	—	1	1	—	2	1	3
Wives	10	—	—	—	1	1	3	—	4	3
Widowed—										
Widowers	—	—	—	—	—	—	—	—	—	—
Widows	1	—	—	—	—	—	—	—	—	—

	Total.	Ages.								
		—60.	—65.	—70.	—75.	—80.	—85.	—90.	—95.	—100.	100—
Unmarried—											
Males	44	1	1	—	—	—	—	—	—	—	—
Females	25	1	—	—	—	—	—	—	—	—	—
Married—											
Husbands	10	1	—	—	—	—	—	—	—	—	—
Wives	10	1	—	—	—	—	1	—	—	—	—
Widowed—											
Widowers	—	—	—	—	—	—	—	—	—	—	—
Widows	1	—	—	—	1	—	—	—	—	—	—

Note.—If such details are not necessary they are a double evil, as, while valueless in themselves, they injure the value of the statistics which are thus overlaid.

EXPLANATORY REMARKS

(referring to Appendices).

Estimated Figures.—Some estimates have been requisite to give uniformity to the tables of each census. These estimates have been of three kinds:—

(1). Those adopted in order to distinguish the manufacturers from the dealers, *i.e.*, those who manufacture from those who buy merely to sell again, as in the following cases; goldsmiths and silversmiths, tobacco manufacturers and tobacconists, hat manufacturers and hatters. In other cases the dealers being comparatively few have been included with the manufacturers.

(2). Those required where some important item has been omitted from a particular census, *e.g.*—the numbers of land owners and house owners (not otherwise returned) and independent persons in the 1881 columns, which are estimates based on the figures given in the two earlier censuses, and have been deducted from those described as unoccupied in the 1881 census.

(3). Estimates rendered necessary by the coupling together of two trades in a particular census which are separately returned elsewhere, as mason and pavior in 1871.

In addition to these minor points, no error in which could materially affect the totals either of Manufacture or Dealing, an estimate is given of the probable division of dependents among the classes on whom they depend, which has been made the basis of a separate table in which the proportion of the whole population supported, or probably supported, by each group of industry is allotted to it.

For this purpose all males over 20 years of age are counted as in some sense self supporting, but no male under 20, or female of any age, is counted as self supporting or "occupied" unless stated to be so in the census. The partially employed wives are throughout treated as *not* self supporting, according to the principle adopted in the census of 1881.

All males over 20 who are not returned as definitely employed or as independent have been placed in the indefinite class, which represents the residuum after all claims to definite occupation have been allowed. All males under 20, and all females who are not returned as occupied, have been considered as dependents. These dependent women and children are the children and wives of the whole population at school or at home, but not at work. The allotment of them to the main groups of employment could only be made on arbitrary lines, and has been based on the following broad assumptions:—

I. That the whole number of wives and children in each group was proportionate to the number of males 25—65 years old.

II. That in no case are more than 50 per cent. of the whole number of women and children at work (not less than 50 per cent. being assumed to be in every case at home or school). This assumption affects very few trades, and any error in it would be immaterial on the whole.

III. That each class of work employs its own women and young people first (or what amounts to the same thing, that there is an equal give and take between different classes of work in this respect).

IV. That the female or juvenile labour absorbed in domestic service, teaching, &c., is drawn proportionally from all sections of the community as here divided.*

Acting on these assumptions, the division is merely arithmetical, and is correct in proportion as they are correct. The results are certainly not correct in detail, but in a more general sense they cannot be very wide of the truth; the dependents exist, and they are supported in some such way. The only exceptional circumstance taken into account is the case of indoor male servants, to whom no dependents have been allotted, as they are mostly unmarried. There will be innumerable minor points affecting the correctness of such a division in detail, but it is impossible to give effect to them in any estimates, and it is only from actual enumeration that an exact statement can be made. In 1831 for England, Scotland, and Ireland,† in 1841 for England and Scotland, the basis of division taken is the number of males over 20 in each group of employment, and in Ireland for 1841 and 1851 the basis is all males over 15, these ages only being given in those censuses in connection with employment.

The census returns fail to distinguish nominal from actual employment, and consequently the great majority of paupers, criminals, and other useless persons, having described themselves as following some occupation, are returned with the employed in the subjoined tables. A statement of the numbers of these useless classes in 1861, 1871, and 1881 will be found in Appendix D.

In compressing the 400 occupations given in the 1881 census to the 50 groups, care has been taken so far as possible to put together such as might have been confused in the returns, and beyond this it will be found that parallel columns afford a very ready means of detecting error. Sudden fluctuations up and down require an adequate explanation, and can hardly escape notice.

The full statement of the 400 occupations given in the census, with their addition into the groups given here, has been placed in the library of the Statistical Society, and will be found useful for reference, giving, as it does, the complete information from the various censuses in parallel columns with uniform tabulation.

* This rule has been slightly modified in the case of England and Wales, where it seems evident that agriculture has provided more domestic servants in proportion to its numbers than mining, building, or manufacture.

† The returns of 1831 being of an incomplete character are not included in the summary tables, but will be found in the detailed statement, which is in the library of the Statistical Society.

APPENDIX A (1).

ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry.					
A. *Agriculture.*					
Farmers and their Relatives—					
Males under 15	2·7	—	—	1·9	0·2
„ 15—20		39·0	33·3	28·0	29·0
„ 20—25	231·4	35·5	30·4	26·1	27·3
„ 25—65		231·5	224·3	213·0	205·2
„ over 65		42·8	46·9	49·6	36·2
Total	**234·1**	**348·8**	**334·9**	**318·6**	**297·9**
Females under 15	19·2	—	—	—	—
„ over 15		22·9	22·8	24·3	20·6
Total	**19·2**	**22·9**	**22·8**	**24·3**	**20·6**
Total of Farmers, &c.	**253·3**	**371·7**	**357·7**	**342·9**	**318·5**
Agricultural Labourers & Shepherds—					
Males under 15	156·9	105·7	119·0	98·0	68·0
„ 15—20		181·9	169·8	148·3	156·4
„ 20—25	767·6	147·7	124·5	102·3	99·2
„ 25—65		600·3	596·1	489·5	434·8
„ over 65		74·7	88·9	83·9	72·1
Total	**924·5**	**1110·3**	**1098·3**	**922·0**	**830·5**
Females under 15	37·6	13·2	6·1	4·2	2·1
„ over 15		130·3	84·5	53·9	38·2
Total	**37·6**	**143·5**	**90·6**	**58·1**	**40·3**
Total of Agricultural Labourers, &c.	**962·1**	**1253·8**	**1188·9**	**980·1**	**870·8**
Nurserymen, Gardeners, &c.—					
Males under 15	3·6	1·9	2·3	2·6	1·8
„ 15—20		6·6	7·4	9·5	8·0
„ 20—25	47·7	7·7	7·6	10·2	8·1
„ 25—65		58·6	61·5	73·7	53·1
„ over 65		8·8	10·5	14·0	9·2
Total	**51·3**	**83·6**	**89·3**	**110·0**	**80·2**
Females under 15	1·4	0·1	—	0·1	0·1
„ over 15		2·2	2·0	2·6	3·1
Total	**1·4**	**2·3**	**2·0**	**2·7**	**3·2**
Total of Nurserymen, &c.	**52·7**	**85·9**	**91·3**	**112·7**	**83·4**
Agriculture—Carried forward	1268·1	1711·4	1637·9	1435·7	1272·7

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Agriculture—Brought forward	1268·1	1711·4	1637·9	1435·7	1272·7
Drainage and Machinery Attendants—					
Males under 15	—	—	—	—	—
„ 15—20	—	—	0·2	0·2	0·4
„ 20—25	—	—	0·4	0·4	0·7
„ 25—65	—	—	2·5	2·7	4·6
„ over 65	—	—	0·1	0·2	0·2
Total	—	—	**3·2**	**3·5**	**5·9**
Females under 15.....	—	—	—	—	—
„ over 15.....	—	—	—	—	0·1
Total	—	—	—	—	**0·1**
Total of Drainage, &c., Attendants	—	—	**3·2**	**3·5**	**6·0**
Breeding and Dealing (horses and cattle)					
Males under 15	2·1	1·2	1·9	1·7	1·4
„ 15—20		4·8	6·8	8·8	8·4
„ 20—25	27·0	7·1	7·1	9·6	9·3
„ 25—65		32·1	40·2	40·6	40·0
„ over 65		2·4	3·0	3·7	2·8
Total	**29·1**	**47·6**	**59·0**	**64·4**	**61·9**
Females under 15.....	0·1	—	—	—	—
„ over 15.....		0·6	0·1	0·3	0·4
Total	**0·1**	**0·6**	**0·1**	**0·3**	**0·4**
Total of Breeding and Dealing.....	**29·2**	**48·2**	**59·1**	**64·7**	**62·3**
Total of Agriculture	**1297·3**	**1759·6**	**1700·2**	**1503·9**	**1341·0**
B. *Fishing.*					
Fishermen—					
Males under 15	1·0	0·7	0·7	0·8	0·8
„ 15—20		2·2	2·3	3·1	5·4
„ 20—25	9·2	2·4	2·1	2·9	5·2
„ 25—65		10·3	10·4	12·2	16·5
„ over 65		1·3	1·5	1·7	1·5
Total	**10·2**	**16·9**	**17·0**	**20·7**	**29·4**
Females under 15.....	0·3	—	—	—	—
„ over 15.....		—	0·3	0·3	0·3
Total	**0·3**	—	**0 3**	**0·3**	**0·3**
Total of Fishing.....	**10·5**	**16·9**	**17·3**	**21·0**	**29·7**

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
C. *Mining.*					
Miners—					
Males under 15	42·7	32·4	39·9	35·9	25·7
,, 15—20		42·6	55·7	63·0	74·0
,, 20—25	125·8	42·1	51·7	57·8	70·5
,, 25—65		133·8	174·5	205·6	258·9
,, over 65		5·7	7·4	8·9	9·4
Total	**168·5**	**256·6**	**329·2**	**371·2**	**438·5**
Females under 15	5·2	1·4	0·5	0·9	0·5
,, over 15		5·0	4·6	4·8	5·3
Total	**5·2**	**6·4**	**5·1**	**5·7**	**5·8**
Total of Miners	**173·7**	**263·0**	**334·3**	**376·9**	**444·3**
Quarrying and Brickmaking—					
Males under 15	5·3	4·4	6·4	5·5	4·2
,, 15—20		7·7	10·1	11·0	15·2
,, 20—25	28·9	9·2	11·0	11·8	14·9
,, 25—65		42·9	53·9	57·5	69·1
,, over 65		2·4	2·9	3·7	4·0
Total	**34·2**	**66·6**	**84·3**	**89·5**	**107·4**
Females under 15	0·6	0·4	0·4	0·6	0·1
,, over 15		1·6	2·1	2·5	2·8
Total	**0·6**	**2·0**	**2·5**	**3·1**	**2·9**
Total of Quarrying, &c.	**34·8**	**68·6**	**86·8**	**92·6**	**110·3**
Salt and Water Works—					
Males under 15	0·2	—	0·1	0·1	—
,, 15—20		0·3	0·3	0·3	0·5
,, 20—25	1·4	0·3	0·4	0·6	0·6
,, 25—65		2·6	3 0	3·9	5·4
,, over 65		0·2	0·2	0·2	0·3
Total	**1·6**	**3·4**	**4·0**	**5·1**	**6·8**
Females under 15	—	—	—	—	—
,, over 15	—	0·2	0·1	—	0·2
Total	—	**0·2**	**0·1**	—	**0·2**
Total of Salt and Water Works	**1·6**	**3·6**	**4·1**	**5·1**	**7 0**
Total of Mining	**210·1**	**335·2**	**425·2**	**474·6**	**561·6**

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
D. *Building.*					
Management—					
Males under 15	1·2	0·1	0·4	0·3	0·2
„ 15—20		1·8	2·8	3·6	4·2
„ 20—25	14·0	2·2	3·2	4·4	5·7
„ 25—65		15·3	22·9	31·4	42·2
„ over 65		1·6	2·5	3·7	3·2
Total	**15·2**	**21·0**	**31·8**	**43·4**	**55·5**
Females under 15	0·1	—	—	—	—
„ over 15		0·7	0·1	—	0·1
Total	**0·1**	**0·7**	**0·1**	**—**	**0·1**
Total of Management	**15·3**	**21·7**	**31·9**	**43·4**	**55·6**
Operative—*					
Males under 15	36·1	10·0	12·2	12·4	10·6
„ 15—20		49·1	58·5	75·4	89·5
„ 20—25	274·0	56·3	67·5	86·3	100·1
„ 25—65		260·3	296·2	358·2	435·7
„ over 65		21·2	25·0	29·0	28·0
Total	**310·1**	**396·9**	**459·4**	**561·3**	**663·9**
Females under 15	1·2	—	—	—	—
„ over 15		0·2	0·9	1·0	2·2
Total	**1·2**	**0·2**	**0·9**	**1·0**	**2·2**
Total of Operative	**311·3**	**397·1**	**460·3**	**562·3**	**666·1**
Roadmaking—†					
Males under 15	2·0	0·6	0·9	0·9	0·5
„ 15—20		2·6	3·4	3·4	4·2
„ 20—25	23·9	6·4	7·7	6·7	9·5
„ 25—65		29·8	41·1	44·2	55·9
„ over 65		2·5	3·4	3·2	4·4
Total	**25·9**	**41·9**	**46·5**	**58·4**	**74·5**
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	0·3
Total	**—**	**—**	**—**	**—**	**0·3**
Total of Roadmaking	**25·9**	**41·9**	**46·5**	**58·4**	**74·8**
„ Building	**352·5**	**460·7**	**538·7**	**664·1**	**796·5**

* "Operative Builders" includes all labourers returned as employed in Building, whether skilled or not, *e.g.*, bricklayers' labourers count as bricklayers.

† "Roadmaking" includes railway navvies and platelayers.

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
E. *Manufacture.*					
Machinery and Tools—					
Males under 15	9·2	4·9	8·3	7·1	4·9
„ 15—20		14·3	25·3	28·5	31·8
„ 20—25	43·9	15·6	26·2	30·7	33·2
„ 25—65		58·4	86·9	114·5	138·3
„ over 65		2·8	4·3	4·8	5·3
Total	**53·1**	**96·0**	**151·0**	**185·6**	**213·5**
Females under 15	3·1	0·7	1·3	0·7	0·6
„ over 15		3·4	6·2	7·0	10·0
Total	**3·1**	**4·1**	**7·5**	**7·7**	**10·6**
Total of Machinery and Tools	**56·2**	**100·0**	**158·5**	**193·3**	**224·1**
Shipbuilding—					
Males under 15	4·2	0·8	1·6	1·0	1·0
„ 15—20		4·3	6·8	5·1	6·5
„ 20—25	18·0	3·8	7·5	6·6	6·5
„ 25—65		16·4	25·5	30·3	38·2
„ over 65		1·5	2·4	2·1	1·9
Total	**22·2**	**26·8**	**43·8**	**45·1**	**54·1**
Females under 15	—	—	—	—	—
„ over 15	—	—	0·1	0·1	0·1
Total	—	—	**0·1**	**0·1**	**0·1**
Total of Shipbuilding	**22·2**	**26·8**	**43·9**	**45·2**	**54·2**
Metal Workers—					
Males under 15	32·2	18·0	24·9	20·9	13·3
„ 15—20		43·0	58·1	66·8	72·0
„ 20—25	147·2	42·4	55·8	64·2	67·5
„ 25—65		155·3	195·8	242·1	279·7
„ over 65		10·3	11·9	14·0	14·0
Total	**179·4**	**269·0**	**346·5**	**408·0**	**446·5**
Females under 15	8·6	3·6	4·9	3·1	1·6
„ over 15		20·6	23·5	24·0	28·8
Total	**8·6**	**24·2**	**28·4**	**27·1**	**30·4**
Total of Metal Workers	**188·0**	**293·2**	**374·9**	**435·1**	**476·9**
Manufacture—Carried forward	266·4	420·1	577·3	673·6	755·2

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	266·4	420·1	577·3	673·6	755·2
Earthenware, &c.—					
Males under 15	6·2	6·0	6·1	5·0	3·7
,, 15—20		5·8	6·9	9·0	9·9
,, 20—25	17·4	4·8	6·1	7·3	7·3
,, 25—65		17·5	22·5	27·1	30·3
,, over 65		0·7	0·9	1·3	1·0
Total	**23·6**	**34·8**	**42·5**	**49·7**	**52·2**
Females under 15.....	7·4	2·4	2·5	2·5	1·9
,, over 15.....		9·3	10·9	15·2	17·8
Total	**7·4**	**11·7**	**13·4**	**17·7**	**19·7**
Total of Earthenware, &c.....	**31·0**	**46·5**	**55·9**	**67·4**	**71·9**
Fuel, Gas, and Chemicals—					
Males under 15	0·5	0·6	0·9	0·9	0·5
,, 15—20		1·7	1·8	3·0	3·4
,, 20—25	5·3	2·1	2·9	4·1	5·3
,, 25—65		11·2	18·3	25·9	33·6
,, over 65		0·8	0·9	1·0	1·2
Total	**5·8**	**16·4**	**24·8**	**34·9**	**44·0**
Females under 15.....	0·3	0·1	0·2	0·5	0·2
,, over 15.....		1·6	1·3	3·6	3·8
Total	**0·3**	**1·7**	**1·5**	**4·1**	**4·0**
Total of Fuel, Gas, &c.....	**6·1**	**18·1**	**26·3**	**39·0**	**48·0**
Furs, Leather, Glue, &c.—					
Males under 15	3·4	1·7	1·9	2·0	1·4
,, 15—20		5·2	6·4	6·0	6·1
,, 20—25	28·2	5·9	5·8	6·1	6·4
,, 25—65		29·5	30·9	32·3	33·1
,, over 65		2·2	2·3	3·0	2·4
Total	**31·6**	**44·5**	**47·3**	**49·4**	**49·4**
Females under 15.....	2·4	0·8	0·9	0·8	0·6
,, over 15.....		5·7	7·4	9·4	12·7
Total	**2·4**	**6·5**	**8·3**	**10·2**	**13·3**
Total of Furs, Leather, &c.....	**34·0**	**51·0**	**55·6**	**59·6**	**62·7**
Manufacture—Carried forward.....	337·5	535·7	715·1	839·6	937·8

App. A (1)—*Contd.* England and Wales.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	337·5	535·7	715·1	839·6	937·8
Wood, Furniture, and Carriages—					
Males under 15	18·2	7·5	6·4	5·7	4·3
„ 15—20		23·6	28·8	29·1	30·0
„ 20—25	129·3	24·2	29·0	29·2	30·5
„ 25—65		115·4	126·7	137·7	145·3
„ over 65		9·5	11·3	12·5	11·5
Total	**147·5**	**180·2**	**202·2**	**214·2**	**221·6**
Females under 15.....	4·9	0·6	0·8	1·3	0·7
„ over 15.....		8·3	13·3	18·2	17·7
Total	**4·9**	**8·9**	**14·1**	**19·5**	**18·4**
Total of Wood, &c.	**152·4**	**189·1**	**216·3**	**233·7**	**240·0**
Paper, Floorcloth, and Waterproof—					
Males under 15	1·5	1·4	1·9	1·8	1·4
„ 15—20		1·9	2·2	3·3	4·3
„ 20—25	7·4	1·7	2·0	2·8	3·2
„ 25—65		8·0	7·9	11·5	14·8
„ over 65		0·6	0·6	0·9	0·9
Total	**8·9**	**13·6**	**14·6**	**20·3**	**24·6**
Females under 15.....	3·2	0·8	1·3	1·3	1·7
„ over 15.....		7·5	9·4	12·1	21·5
Total	**3·2**	**8·3**	**10·7**	**13·4**	**23·2**
Total of Paper, &c.	**12·1**	**21·9**	**25·3**	**33·7**	**47·8**
Textiles and Dyeing—					
Males under 15	83·2	68·0	65·6	63·1	50·5
„ 15—20		75·8	69·2	69·1	75·3
„ 20—25	263·0	59·8	54·5	48·5	53·7
„ 25—65		239·0	229·7	214·0	201·3
„ over 65		19·8	20·7	19·8	15·6
Total	**346·2**	**462·4**	**439·7**	**414·5**	**396·4**
Females under 15.....	257·6	81·3	83·4	89·2	66·0
„ over 15.....		390·8	443·1	466·3	500·2
Total	**257·6**	**472·1**	**526·5**	**555·5**	**566·2**
Total of Textiles, &c.	**603·8**	**934·5**	**966·2**	**970·0**	**962·6**
Manufacture—Carried forward	1105·8	1681·2	1922·9	2077·0	2188·2

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward	1105·8	1681·2	1922 9	2077·0	2188·2
Dress—					
Males under 15	46·7	20·1	18·2	13·3	8·8
„ 15—20		49·8	44·2	38·2	40·5
„ 20—25	296·9	51·6	42·8	38·3	39·8
„ 25—65		252·5	248·1	244·7	227·7
„ over 65		23·5	25·3	28·8	27·9
Total	**343·6**	**397·5**	**378·6**	**363·3**	**344·7**
Females under 15.....	177·2	30·2	26·4	23·4	20·3
„ over 15.....		441·0	524·5	529·3	589·0
Total	**177·2**	**471·2**	**550·9**	**552·7**	**609·3**
Total of Dress	**520·8**	**868·7**	**929·5**	**916·0**	**954·0**
Food, Drink, and Smoking—					
Males under 15	7·9	3·5	4·8	4·5	4·3
„ 15—20		15·5	16·3	18·1	22·8
„ 20—25	74·8	17·2	17·3	19·6	22·2
„ 25—65		78·8	88·1	95·2	97·2
„ over 65		5·9	6·9	8·3	5·8
Total	**82·7**	**120·9**	**133·4**	**145·7**	**152·3**
Females under 15.....	8·0	0·3	0·5	0·8	1·3
„ over 15.....		12·1	15·1	17·7	27·6
Total	**8·0**	**12·4**	**15·6**	**18·5**	**28·9**
Total of Food, &c.....	**90·7**	**133·3**	**149·0**	**164·2**	**181·2**
Watches, Instruments, and Toys—					
Males under 15	2·8	0·8	1·1	0·9	0·8
„ 15—20		3·4	4·6	5·0	5·7
„ 20—25	16·8	3·0	5·2	4·6	6·2
„ 25—65		15·2	20·3	23·4	27·0
„ over 65		1·1	1·6	2·0	2·0
Total.....	**19·6**	**23·5**	**32·8**	**35·9**	**41·7**
Females under 15.....	0·8	0·1	0·1	0·1	0·1
„ over 15.....		1·2	2·8	2·9	3·3
Total	**0·8**	**1·3**	**2·9**	**3·0**	**3·4**
Total of Watches, &c.....	**20·4**	**24·8**	**35·7**	**38·9**	**45·1**
Manufacture—Carried forward	1737·7	2708·0	3037·1	3196·1	3368·5

App. A (1)—*Contd.* England and Wales.—*Occupations of the People*, 1841-81.
[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward	1737·7	2708·0	3037·1	3196·1	3368·5
Printing and Bookbinding—					
Males under 15	4·1	1·5	3·2	4·2	5·0
„ 15—20		6·2	8·8	13·2	18·5
„ 20—25	17·0	5·4	6·8	9·5	12·3
„ 25—65		16·6	21·5	29·3	37·9
„ over 65		0·7	1·0	1·4	1·3
Total	**21·1**	**30·4**	**41·3**	**57·6**	**75·0**
Females under 15.....	1·8	0·4	0·7	0·8	1·1
„ over 15.....		3·4	5·5	7·8	12·0
Total	**1·8**	**3·8**	**6·2**	**8·6**	**13·1**
Total of Printing, &c.....	**22·9**	**34·2**	**47·5**	**66·2**	**88·1**
Unspecified—*					
Males under 15	5·9	1·3	2·1	6·0	4·5
„ 15—20		3·4	5·9	12·4	18·9
„ 20—25	22·8	2·4	4·4	9·7	18·1
„ 25—65		5·3	14·1	35·6	82·8
„ over 65		0·2	0·5	1·4	2·9
Total	**28·7**	**12·6**	**27·0**	**65·1**	**127·2**
Females under 15.....	8·9	—	1·2	3·1	1·1
„ over 15.....		—	4·0	28·0	14·1
Total	**8·9**	—	**5·2**	**31·1**	**15·2**
Total of Unspecified	**37·6**	**12·6**	**32·2**	**96·2**	**142·4**
„ Manufacture	**1798·2**	**2754·8**	**3116·8**	**3358·5**	**3599·0**
F. *Transport.*					
Navigation and Docks—†					
Males under 15	12·1	42·5	32·8	42·4	47·3
„ 15—20		38·9	40·4	47·5	56·7
„ 20—25	87·9	27·2	35·8	36·1	38·7
„ 25—65		120·4	152·7	166·8	187·3
„ over 65		7·9	10·4	11·8	10·5
Total	**100·0**	**236·9**	**272·1**	**304·6**	**340·5**
Females under 15.....	1·1	3·0	1·1	1·7	1·1
„ over 15.....		6·2	4·7	7·6	5·6
Total	**1·1**	**9·2**	**5·8**	**9·3**	**6·7**
Total of Navigation, &c.....	**101·1**	**246·1**	**277·9**	**313·9**	**347·2**
Transport—Carried forward.....	101·1	246·1	277·9	313·9	347·2

* "Unspecified" in Manufacture contains, in addition to engineers and firemen, mechanics, machine minders, and workers who did not specify with what branch of Manufacture they were connected.

† "Navigation" includes only sailors who were in port. For others, see Appendix E.

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People,* 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Transport—Brought forward.....	101·1	246·1	277·9	313·9	347·2
Railways—					
Males under 15	0·1	0·3	1·1	1·5	1·8
„ 15—20		2·1	6·1	10·6	18·1
„ 20—25	1·9	4·1	9·8	16·6	27·2
„ 25—65		18·5	35·9	55·0	90·1
„ over 65		0·1	0·4	0·9	1·6
Total	**2·0**	**25·1**	**53·3**	**84·6**	**138·8**
Females under 15.....	—	—	—	—	—
„ over 15.....	—	0·1	0·1	0·3	0·7
Total	—	—	—	—	—
Total of Railways.....	**2·0**	**25·2**	**53·4**	**84·9**	**139·5**
Roads—					
Males under 15	2·5	1·5	2·9	2·1	3·1
„ 15—20		5·0	8·8	9·5	16·7
„ 20—25	41·6	8·0	11·8	15·5	25·4
„ 25—65		54·0	74·3	89·6	115·7
„ over 65		3·4	4·4	5·5	5·0
Total	**44·1**	**71·9**	**102·2**	**122·2**	**165·9**
Females under 15.....	1·2	—	—	—	—
„ over 15.....		2·1	2·5	2·5	1 3
Total	**1·2**	**2·1**	**2·5**	**2·5**	**1·3**
Total of Roads	**45·3**	**74·0**	**104·7**	**124·7**	**167·2**
„ Transport.....	**148·4**	**345·3**	**436·0**	**523·5**	**653·9**
G. *Dealing.*					
Raw Materials—					
Males under 15	2·4	0·8	1·5	2·7	0·9
„ 15—20		3·4	4·1	6·3	4·5
„ 20—25	20·8	3·8	4·9	6·7	5·5
„ 25—65		28·2	37·4	49·2	44·7
„ over 65		2·6	3·6	4·8	3·8
Total	**23·2**	**38·8**	**51·5**	**69·7**	**59·4**
Females under 15.....	1·4	0·2	0·5	0·4	0·1
„ over 15.....		0·9	3·3	5·6	2·9
Total	**1·4**	**1·1**	**3·8**	**6·0**	**3·0**
Total of Raw Materials	**24·6**	**39·9**	**55·3**	**75·7**	**62·4**
Dealing—Carried forward.....	24·6	39·9	55·3	75·7	62·4

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Dealing—Brought forward.....	24·6	39·9	55·3	75·7	62·4
Clothing Materials and Dress—					
Males under 15	6·7	1·5	2·0	1·9	1·6
„ 15—20		9·9	13·5	14·8	14·1
„ 20—25	27·5	9·7	12·5	13·2	13·6
„ 25—65		23·5	36·3	38·0	43·8
„ over 65		1·2	2·2	2·3	1·7
Total	**34·2**	**45·8**	**66·5**	**70·2**	**74·8**
Females under 15.....	4·6	0·3	0·2	0·7	0·8
„ over 15.....		9·2	17·3	24·6	36·1
Total	**4·6**	**9·5**	**17·5**	**25·3**	**36·9**
Total of Clothing, &c.....	**38·8**	**55·3**	**84·0**	**95·5**	**111·7**
Food, Drink, and Smoking—					
Males under 15	10·9	5·2	6·7	7·8	8·0
„ 15—20		25·1	28·0	36·2	45·5
„ 20—25	144·2	26·4	27·1	34·8	41·6
„ 25—65		168·0	192·4	222·7	241·2
„ over 65		13·9	17·3	21·4	16·7
Total	**155·1**	**238·6**	**271·5**	**322·9**	**353·0**
Females under 15.....	27·0	0·5	0·5	0·7	0·8
„ over 15.....		45·3	57·4	65·6	69·7
Total	**27·0**	**45·8**	**57·9**	**66·3**	**70·5**
Total of Food, &c.....	**182·1**	**284·4**	**329·4**	**389·2**	**423·5**
Lodging and Coffee Houses—					
Males under 15	—	—	—	0·1	—
„ 15—20	—	0·1	0·1	0·1	0·2
„ 20—25	2·4	0·4	0·1	0·2	0·4
„ 25—65		4·9	5·2	5·9	8·5
„ over 65		0·5	0·7	0·8	0·9
Total	**2·4**	**5·9**	**6·1**	**7·1**	**10·0**
Females under 15.....	6·6	—	—	0·1	—
„ over 15.....		16·6	18·6	24·2	35·6
Total	**6·6**	**16·6**	**18·6**	**24·3**	**35·6**
Total of Lodging Houses, &c.....	**9·0**	**22·5**	**24·7**	**31·4**	**45·6**
Dealing—Carried forward.....	254·5	402·1	493·4	591·8	643·2

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Dealing—Brought forward.....	254·5	402·1	493·4	591·8	643·2
Furniture, Utensils, and Stationery—					
Males under 15	3·1	1·3	2·0	2·5	2·5
„ 15—20		4·9	7·3	9·7	11·4
„ 20—25	20·4	4·8	5·9	8·1	9·4
„ 25—65		22·2	30·3	35·3	42·7
„ over 65		1·5	2·1	2·5	2·5
Total	**23·5**	**34·7**	**47·6**	**58·1**	**68·5**
Females under 15.....	2·7	—	0·2	0·3	0·3
„ over 15.....		5·0	7·9	11·1	15·1
Total	**2·7**	**5·0**	**8·1**	**11·4**	**15·4**
Total of Furniture, &c.....	**26·2**	**39·7**	**55·7**	**69·5**	**83·9**
General Dealers and Unspecified—					
Males under 15	2·5	1·3	2·1	3·1	1·8
„ 15—20		4·8	5·8	8·6	9·0
„ 20—25	52·8	7·4	8·1	12·5	14·4
„ 25—65		56·0	69·8	94·3	115·7
„ over 65		5·0	6·3	9·8	9·2
Total	**55·3**	**74·5**	**92·1**	**128·3**	**150·1**
Females under 15.....	15·0	0·9	0·6	1·1	0·9
„ over 15.....		29·5	31·7	47·4	46·1
Total	**15·0**	**30·4**	**32·3**	**48·5**	**47·0**
Total of General Dealers....	**70·3**	**104·9**	**124·4**	**176·8**	**197·1**
„ Dealing	**351·0**	**546·7**	**673·5**	**838·1**	**924·2**
H. *Industrial Service.*					
Commercial—					
Males under 15	8·4	1·3	2·2	3·7	6·3
„ 15—20		8·7	14·9	27·4	49·3
„ 20—25	32·5	8·6	13·6	24·6	46·3
„ 25—65		24·8	34·3	58·1	112·8
„ over 65		1·3	2·0	3·3	4·2
Total	**40·9**	**44·7**	**67·0**	**117·1**	**218·9**
Females under 15.....	0·2	—	—	—	0·1
„ over 15.....		0·1	0·5	1·8	6·3
Total	**0·2**	**0·1**	**0·5**	**1·8**	**6·4**
Total of Commercial.....	**41·1**	**44·8**	**67·5**	**118·9**	**225·3**
Industrial Service—Carried forward...	41·1	44·8	67·5	118·9	225·3

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Industrial Service—Brought forward...	41·1	44·8	67·5	118·9	225·3
General Labour—					
Males under 15	32·8	14·1	13·5	21·6	13·1
„ 15—20		36·4	34·1	61·9	71·7
„ 20—25	273·5	44·4	36·9	61·1	73·2
„ 25—65		207·2	200·0	323·2	362·5
„ over 65		22·5	22·1	41·7	36·4
Total	**306·3**	**324·6**	**306·6**	**509·5**	**556·9**
Females under 15.....	12·2	0·4	0·2	0·4	0·1
„ over 15.....		6·8	3·2	6·8	2·7
Total	**12·2**	**7·2**	**3·4**	**7·2**	**2·8**
Total of General Labour.....	**318·5**	**331·8**	**310·0**	**516·7**	**559·7**
„ Industrial Service....	**359·6**	**376·6**	**377·5**	**635·6**	**785·0**
Industry—Total.....	4527·6	6595·8	7295·2	8019·5	8690·8
Public Service and Professional.					
Administration—*					
Males under 15	0·6	0·1	1·2	2·5	2·6
„ 15—20		1·2	4·1	6·0	10·0
„ 20—25	19·0	3·6	6·9	7·0	9·6
„ 25—65		39·3	43·0	46·6	45·7
„ over 65		5·5	5·4	5·6	4·7
Total	**19·6**	**49·7**	**60·6**	**67·7**	**72·6**
Females under 15.....	0·9	—	—	0·1	0·1
„ over 15.....		2·2	3·7	5·8	9·0
Total	**0·9**	**2·2**	**3·7**	**5·9**	**9·1**
Total of Administration....	**20·5**	**51·9**	**64·3**	**73·6**	**81·7**
Army and Navy—†					
Males under 15	6·9	0·6	1·1	0·9	0·5
„ 15—20		6·6	18·3	21·1	19·6
„ 20—25	39·8	17·6	35·5	26·4	28·6
„ 25—65		48·0	66·7	81·9	69·9
„ over 65		12·9	10·2	6·4	5·8
Total	**46·7**	**85·7**	**131·8**	**136·7**	**124·4**
Females under 15.....	—	—	—	—	—
„ over 15.....	—	—	—	—	—
Total	—	—	—	—	—
Total of Army and Navy	**46·7**	**85·7**	**131·8**	**136·7**	**124·4**

* "Administration" up to and including 1871 includes artificers and labourers in Government dockyards, but in 1881 these were transferred to their trades.

† "Army and Navy" includes only soldiers and sailors who were in England and Wales on the census night. For total of British army abroad, see Appendix E.

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Public Service, &c.—*Contd.*					
Police and Prisons—					
Males under 15	·3	—	—	—	—
„ 15—20		0·1	0·1	0·2	0·2
„ 20—25	13·2	2·6	4·0	5·1	5·5
„ 25—65		13·5	20·2	25·7	29·6
„ over 65		0·2	0·3	0·5	0·1
Total	**13·5**	**16·4**	**24·6**	**31·5**	**35·4**
Females under 15	—	—	—	—	—
„ over 15	—	—	0·5	0·6	0·6
Total	—	—	**0·5**	**0·6**	**0·6**
Total of Police, &c.	**13·5**	**16·4**	**25·1**	**32·1**	**36·0**
Law—					
Males under 15	0·4	0·7	0·9	0·9	1·0
„ 15—20		4·4	5·0	5·9	7·2
„ 20—25	28·0	4·8	4·4	5·9	7·6
„ 25—65		21·2	21·9	23·6	25·9
„ over 65		1·1	1·5	2·4	1·9
Total	**28·4**	**32·2**	**33·7**	**38·7**	**43·6**
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	0·1
Total	—	—	—	—	**0·1**
Total of Law	**28·4**	**32·2**	**33·7**	**38·7**	**43·7**
Medicine—					
Males under 15	3·6	0·4	0·5	0·4	0·4
„ 15—20		4·7	4·4	4·9	5·6
„ 20—25	24·3	4·8	5·2	6·0	6·7
„ 25—65		22·7	24·1	27·2	29·9
„ over 65		1·4	1·9	2·7	2·5
Total	**27·9**	**34·0**	**36·1**	**41·2**	**45·1**
Females under 15	14·5	—	—	—	—
„ over 15		26·3	27·2	31·4	38·5
Total	**14·5**	**26·3**	**27·2**	**31·4**	**38·5**
Total of Medicine	**42·4**	**60·3**	**63·3**	**72·6**	**83·6**

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Public Service, &c.—*Contd.*					
Art and Amusement—					
Males under 15	1·7	0·7	1·0	0·9	0·7
„ 15—20		2·9	2·7	3·8	4·8
„ 20—25	12·6	3·5	3·6	4·8	5·2
„ 25—65		15·0	17·0	20·8	23·3
„ over 65		0·8	0·7	1·4	1·2
Total	**14·3**	**22·9**	**25·0**	**31·7**	**35·2**
Females under 15	0·9	0·1	0·1	0·2	0·3
„ over 15		2·4	3·9	6·0	11·0
Total	**0·9**	**2·5**	**4·0**	**6·2**	**11·3**
Total of Art, &c.	**15·2**	**25·4**	**29·0**	**37·9**	**46·5**
Literature and Science—					
Males under 15	—	—	—	—	—
„ 15—20	—	0·1	0·2	0·5	0·5
„ 20—25	0·7	0·3	0·3	0·8	1·4
„ 25—65		1·4	2·5	4·6	5·6
„ over 65		0·1	0·1	0·4	0·5
Total	**0·7**	**1·9**	**3·1**	**6·3**	**8·0**
Females under 15	—	—	—	—	—
„ over 15	—	—	0·3	0·3	0·5
Total	—	—	**0·3**	**0·3**	**0·5**
Total of Literature, &c.	**0·7**	**1·9**	**3·4**	**6·6**	**8·5**
Education—					
Males under 15	0·8	0·3	1·2	1·8	1·9
„ 15—20		2·6	6·5	5·9	12·0
„ 20—25	20·3	3·7	4·4	4·4	9·1
„ 25—65		19·9	19·2	22·2	27·3
„ over 65		1·5	1·6	1·7	1·2
Total	**21·1**	**28·0**	**32·9**	**36·0**	**51·5**
Females under 15	30·9	0·4	1·5	2·7	5·3
„ over 15		66·5	81·7	96·6	126·6
Total	**30·9**	**66·9**	**83·2**	**99·3**	**131·9**
Total of Education	**52·0**	**94·9**	**116·1**	**135·3**	**183·4**

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Public Service, &c.—*Contd.*					
Religion—					
Males under 15	—	0·1	0·2	0·1	0·1
„ 15—20	—	—	0·4	0·2	0·4
„ 20—25	20·4	1·1	1·3	1·8	2·6
„ 25—65		25·7	29·4	31·8	35·1
„ over 65		3·2	4·2	5·6	5·7
Total	**20·4**	**30·1**	**35·5**	**39·5**	**43·9**
Females under 15	—	—	0·1	—	—
„ over 15	—	0·9	3·0	5·1	7·2
Total	—	**0·9**	**3·1**	**5·1**	**7·2**
Total of Religion	**20·4**	**31·0**	**38·6**	**44·6**	**51·1**
Total of Public Service, &c.	239·8	399·7	505·3	578·1	658·9
Domestic Service.					
In-door—					
Males under 15	82·1	6·3	8·0	8·2	6·2
„ 15—20		22·7	21·0	25·2	24·0
„ 20—25	132·9	19·7	16·0	19·6	20·1
„ 25—65		47·5	42·6	46·8	48·9
„ over 65		2·1	2·4	2·8	1·7
Total	**215·0**	**98·3**	**90·0**	**102·6**	**100·9**
Females under 15	774·5	61·4	86·7	111·1	98·9
„ over 15		722·9	894·8	1124·5	1170·4
Total	**774·5**	**784·3**	**981·5**	**1235·6**	**1269·3**
Total of In-door Servants	**989·5**	**882·6**	**1071·5**	**1338·2**	**1370·2**
Out-door—					
Males under 15	0·1	0·6	1·4	1·2	2·6
„ 15—20		4·6	9·0	9·1	18·1
„ 20—25	5·9	6·2	8·7	10·9	21·4
„ 25—65		22·0	37·0	45·7	110·4
„ over 65		0·9	2·3	2·8	9·6
Total	**6·0**	**34·3**	**58·4**	**69·7**	**162·1**
Females under 15	0·4	—	—	—	—
„ over 15		—	0·7	0·8	0·8
Total	**0·4**	—	**0·7**	**0·8**	**0·8**
Total of Out-door Servants	**6·4**	**34·3**	**59·1**	**70·5**	**162·9***
Domestic Service—Carried forward	995·9	916·9	1130·6	1408·7	1533·1

* In the Census Returns, public and private coachmen, and market and domestic gardeners, are confused. Consequently the number of out-door male servants in 1881 is largely exaggerated, or else the figures for the previous decades are considerably below

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.
[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Domestic Service—*Contd.*					
Domestic Service—Brought forward...	995·9	916·9	1130·6	1408·7	1533·1
Extra—					
Males under 15	3·2	1·5	1·2	0·9	0 8
„ 15—20		2·2	2·4	3·1	3·7
„ 20—25	11·8	2·4	2·4	2·8	3·8
„ 25—65		10·4	13·2	15·4	19·3
„ over 65		0·6	1·0	1·3	1·4
Total	**15·0**	**17·1**	**20·2**	**23·5**	**29·0**
Females under 15.....	67·4	1·0	1·1	1·4	1·5
„ over 15.....		186·2	232·3	249·9	274·6
Total	**67·4**	**187·2**	**233·4**	**251·3**	**276·1**
Total of Extra Service	**82·4**	**204·3**	**253·6**	**274·8**	**305·1**
Total of Domestic Service...	1078·3	1121·2	1384·2	1683·5	1838·2
Property Owning and Indefinite.					
Property Owning—†					
Males under 15	5·1	—	—	—	—
„ 15—20		0·7	0·5	0·4	—
„ 20—25	120·5	2·2	2·1	1·5	—
„ 25—65		38·5	36·1	30·2	34·4
„ over 65		19·6	17·0	17·2	20·4
Total	**125·6**	**61·0**	**55·7**	**49·3**	**54·8**
Females under 15.....	322·5	—	—	0·1	—
„ over 15.....		150·4	130·0	168·2	200·0
Total	**322·5**	**150·4**	**130·0**	**168·3**	**200·0**
Total of Property Owning....	**448·1**	**211·4**	**185·7**	**217·6**	**254·8**
Indefinite—					
Males under 15	—	—	—	—	—
„ 15—20	—	—	—	—	—
„ 20—25	336·9	21·4	19·0	25·2	31·7
„ 25—65		55·8	42·9	67·3	116·3
„ over 65		23·3	20·0	31·7	121·5
Total	**336·9**	**100·5**	**81·9**	**124·2**	**269·5**
Females under 15.....	—	—	—	—	—
„ over 15.....	—	—	—	—	—
Total	—	—	—	—	—
Total of Indefinite.....	**336·9**	**100·5**	**81·9**	**124·2**	**269·5**
Total of Property Owning, &c...	785·0	311·9	267·6	341·8	524·3

the mark. A reference to the full statement of occupations (which is in the library of the Statistical Society) will show that under the heading "Gardeners" (Agriculture) and "Coachmen" (Transport) there is a corresponding falling off in 1881.

† "Property Owners" only include those who so returned themselves. In 1881 no

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Estimated to be dependent on each Class of Workers.*					
Agriculture—					
Males under 15	791·4	731·2	724·4	663·6	632·9
„ 15—20		—	—	—	—
Total	**791·4**	**731·2**	**724·4**	**663·6**	**632·9**
Females under 15.....	1786·6	802·1	813·1	740·6	690·0
„ over 15.....		954·3	955·8	838·0	771·1
Total	**1786·6**	**1756·4**	**1768·9**	**1578·6**	**1461·1**
Total of Dependents on Agriculture....	**2578·0**	**2487·6**	**2493·3**	**2242·2**	**2094·0**
Fishing—					
Males under 15	7·1	8·1	8·8	10·7	15·0
„ 15—20		—	—	—	—
Total	**7·1**	**8·1**	**8·8**	**10·7**	**15·0**
Females under 15.....	15·5	9·2	9·2	11·1	15·5
„ over 15.....		12·4	12·1	13·9	19·1
Total	**15·5**	**21·6**	**21·3**	**25·0**	**34·6**
Total of Dependents on Fishing....	**22·6**	**29·7**	**30·1**	**35·7**	**49·6**
Mining—					
Males under 15	91·1	127·1	165·8	208·7	288·4
„ 15—20		—	—	—	—
Total	**91·1**	**127·1**	**165·8**	**208·7**	**288·4**
Females under 15.....	262·6	156·8	204·1	241·2	312·2
„ over 15.....		209·0	269·7	306·5	390·4
Total	**262·6**	**365·8**	**473·8**	**547·7**	**702·6**
Total of Dependents on Mining....	**353·7**	**492·9**	**639·6**	**756·4**	**991·0**
Building—					
Males under 15	238·6	267·4	316·7	392·8	498·3
„ 15—20		15·7	16·3	20·1	28·5
Total	**238·6**	**283·1**	**333·0**	**412·9**	**526·8**
Females under 15.....	534·6	270·0	319·2	394·3	500·8
„ over 15.....		366·8	432·1	513·0	640·5
Total	**534·6**	**636·8**	**751·3**	**907·3**	**1141·3**
Total of Dependents on Building....	**773·2**	**919·9**	**1084·3**	**1320·2**	**1668·1**

account was taken of them at all, and the figures given above are an estimate based on the previous returns for the sake of uniformity; no statistical value attaches to the figures in any case.

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Contd.*					
Manufacture—					
Males under 15	743·5	791·4	894·7	1047·0	1220·0
„ 15—20		—	—	—	—
Total	**743·5**	**791·4**	**894·7**	**1047·0**	**1220·0**
Females under 15.....	1464·8	788·5	897·9	1025·1	1204·5
„ over 15.....		928·2	1030·7	1123·3	1289·0
Total	**1464·8**	**1716·7**	**1928·6**	**2148·4**	**2493·5**
Total of Dependents on Manufacture...	**2208·3**	**2508·1**	**2823·3**	**3195·4**	**3713·5**
Transport—					
Males under 15	102·3	131·3	204·5	245·8	323·1
„ 15—20		—	3·9	5·9	—
Total	**102·3**	**131·3**	**208·4**	**251·7**	**323·1**
Females under 15.....	223·4	167·6	231·8	281·3	367·7
„ over 15.....		223·8	300·7	349·4	454·2
Total	**223·4**	**391·4**	**532·5**	**630·7**	**821·9**
Total of Dependents on Transport....	**325·7**	**522·7**	**740·9**	**882·4**	**1145·0**
Dealing—					
Males under 15	213·7	265·5	326·1	399·0	459·3
„ 15—20		20·1	24·4	29·6	32·6
Total	**213·7**	**285·6**	**350·5**	**428·6**	**491·9**
Females under 15.....	407·9	265·2	327·2	401·6	463·3
„ over 15.....		287·3	332·1	385·2	454·5
Total	**407·9**	**552·5**	**659·3**	**786·8**	**917·8**
Total of Dependents on Dealing....	**621·6**	**838·1**	**1009·8**	**1215·4**	**1409·7**
Industrial Service—					
Males under 15	231·4	195·9	199·1	332·0	434·2
„ 15—20		7·5	3·6	0·6	—
Total	**231·4**	**203·4**	**202·7**	**332·6**	**434·2**
Females under 15.....	513·4	204·8	207·4	346·1	445·8
„ over 15.....		272·3	272·9	439·0	559·4
Total	**513·4**	**477·1**	**480·3**	**785·1**	**1005·2**
Total Dependents on Industrial Service	**744·8**	**680·5**	**683·0**	**1117·7**	**1439·4**

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Contd.*					
Public Service and Professional—					
Males under 15	144·4	185·5	217·6	258·0	271·8
„ 15—20		24·0	18·2	22·2	17·7
Total	**144·4**	**209·5**	**235·8**	**280·2**	**289·5**
Females under 15	287·1	183·0	214·6	255·5	268·5
„ over 15		233·7	267·4	297·4	302·6
Total	**287·1**	**416·7**	**482·0**	**552·9**	**571·1**
Total of Dependents on Public Service	**431·5**	**626·2**	**717·8**	**833·1**	**860·6**
Domestic Service—					
Males under 15	12·5	27·4	43·4	55·4	120·4
„ 15—20		0·6	—	2·4	8·9
Total	**12·5**	**28·0**	**43·4**	**57·8**	**129·3**
Females under 15	20·5	27·7	43·4	54·1	120·1
„ over 15		34·0	52·3	63·0	142·9
Total	**20·5**	**61·7**	**95·7**	**117·1**	**263·0**
Total of Dependents on Domestic Service	**33·0**	**89·7**	**139·1**	**174·9**	**392·3**
Property Owning—					
Males under 15	106·0	35·2	33·1	28·3	33·0
„ 15—20		8·5	8·2	7·1	8·1
Total	**106·0**	**43·7**	**41·3**	**35·4**	**41·1**
Females under 15	207·1	32·0	32·0	27·5	32·5
„ over 15		51·7	42·3	34·9	40·8
Total	**207·1**	**83·7**	**74·3**	**62·4**	**73·3**
Total of Dependents on Property Owning	**313·1**	**127·4**	**115·6**	**97·8**	**114·4**

APP. A (1)—*Contd.* ENGLAND AND WALES.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Contd.*					
Indefinite—					
Males under 15	296·5	50·8	39·3	63·0	111·1
„ 15—20		12·2	9·7	16·5	28·3
Total	**296·5**	**63·0**	**49·0**	**79·5**	**139·4**
Females under 15.....	579·1	51·4	38·0	61·2	108·9
„ over 15.....		61·8	50·1	77·5	136·3
Total	**579·1**	**113·2**	**88·1**	**138·7**	**245·2**
Total of Dependents on Indefinite....	**875·6**	**176·2**	**137·1**	**218·2**	**384·6**
Whole Population.					
Employed or Independent—					
Males under 15	666·1	374·2	414·3	403·7	321·0
„ 15—20		784·6	873·6	980·3	1144·2
„ 20—25	4130·7	795·5	860·2	951·9	1112·3
„ 25—65		3545·2	3947·3	4424·0	4995·2
„ over 65		376·3	423·0	490·4	535·6
Total	**4796·8**	**5875·8**	**6518·4**	**7250·3**	**8108·3**
Females under 15.....	1833·9	204·6	224·0	254·4	210·3
„ over 15.....		2348·2	2709·9	3118·2	3393·6
Total	**1833·9**	**2552·8**	**2933·9**	**3372·6**	**3603·9**
Total Employed, &c.....	**6630·7**	**8428·6**	**9452·3**	**10622·9**	**11712·2**
Dependent—					
Males under 15	2978·5	2816·8	3173·5	3704·3	4407·5
„ 15—20		88·6	84·3	104·4	124·1
Total	**2978·5**	**2905·4**	**3257·8**	**3808·7**	**4531·6**
Females under 15.....	6302·6	2958·3	3337·9	3839·6	4529·8
„ over 15.....		3635·3	4018·2	4441·1	5200 8
Total	**6302·6**	**6593·6**	**7356·1**	**8280·7**	**9730·6**
Total Dependents.....	**9281·1**	**9499·0**	**10613·9**	**12089·4**	**14262·2**
Total of Population.....	15911·8	17927·6	20066·2	22712·3	25974·4

APPENDIX A (2).

SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry.					
A. *Agriculture.*					
Farmers and their Relations—					
Males under 15	0·4	—	—	—	—
,, 15—20		8·0	6·5	7·9	5·6
,, 20—25	52·7	7·5	5·2	5·2	5·0
,, 25—65		48·4	50·3	45·8	45·2
,, over 65		11·1	13·4	12·1	12·0
Total	**53·1**	**75·0**	**75·4**	**71·0**	**67·8**
Females under 15.....	3·7	—	—	—	—
,, over 15.....		4·9	6·4	6·9	7·1
Total	**3·7**	**4·9**	**6·4**	**6·9**	**7·1**
Total of Farmers, &c.	**56·8**	**79·9**	**81·8**	**77·9**	**74·9**
Agricultural Labourers & Shepherds—					
Males under 15	39·8	11·2	10·7	9·1	5·8
,, 15—20		27·8	29·1	25·9	24·5
,, 20—25	108·9	23·8	21·4	16·6	18·1
,, 25—65		75·9	68·1	60·9	49·1
,, over 65		8·1	7·0	7·8	4·6
Total	**148·7**	**146·8**	**136·4**	**120·3**	**102·1**
Females under 15.....	43·5	3·6	2·2	2·8	2·2
,, over 15		51·1	38·7	40·8	42·0
Total	**43·5**	**54·7**	**40·9**	**43·6**	**44·2**
Total of Agricultural Labourers, &c.	**192·2**	**201·5**	**177·3**	**163·9**	**146·3**
Nurserymen, Gardeners, &c.—					
Males under 15	0·8	0·1	0·2	0·3	—
,, 15—20		1·2	1·2	1·0	0·7
,, 20—25	6·7	1·3	1·1	1·0	0·8
,, 25—65		8·0	8·0	7·4	4·5
,, over 65		1·1	1·2	1·5	0·9
Total	**7·5**	**11·7**	**11·7**	**11·2**	**6·9**
Females under 15.....	0·2	—	—	—	—
,, over 15.....		0·5	0·3	0·3	0·3
Total	**0·2**	**0·5**	**0·3**	**0·3**	**0·3**
Total of Nurserymen, &c.	**7·7**	**12·2**	**12·0**	**11·5**	**7·2**
Agriculture—Carried forward...	256·7	293·6	271·1	253·3	228·4

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Agriculture—Brought forward	256·7	293·6	271·1	253·3	228·4
Drainage and Machinery Attendance—					
Males under 15	—	—	—	—	—
,, 15—20	—	—	0·1	—	0·1
,, 20—25	—	—	0·1	0·1	0·1
,, 25—65	—	—	0·6	0·3	0·4
,, over 65	—	—	—	—	—
Total	—	—	**0·8**	**0·4**	**0·6**
Females under 15	—	—	—	—	—
,, over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Drainage, &c., Attendance	—	—	**0·8**	**0·4**	**0·6**
Breeding and Dealing (horses and cattle)					
Males under 15	0·4	—	0·1	0·1	0·1
,, 15—20		0·5	0·4	0·3	0·6
,, 20—25	3·1	0·6	0·5	0·6	0·7
,, 25—65		3·0	3·1	3·0	3·2
,, over 65		0·3	0·3	0·4	0·3
Total	**3·5**	**4·4**	**4·4**	**4·4**	**4·9**
Females under 15	—	—	—	—	—
,, over 15	—	0·6	0·1	0·1	0·1
Total	—	**0·6**	**0·1**	**0·1**	**0·1**
Total of Breeding, &c.	**3·5**	**5·0**	**4·5**	**4·5**	**5·0**
Total of Agriculture	**260·2**	**298·6**	**276·4**	**258·2**	**234·0**
B. *Fishing.*					
Fishermen—					
Males under 15	1·2	0·4	0·3	0·4	0·4
,, 15—20		2·3	2·6	3·1	3·9
,, 20—25	12·0	3·0	3·1	3·8	4·4
,, 25—65		12·7	14·6	17·5	18·5
,, over 65		1·2	1·5	1·6	1·5
Total	**13·2**	**19·6**	**22·1**	**26·4**	**28·7**
Females under 15	0·1	—	0·1	—	0·2
,, over 15		—	1·0	1·1	2·4
Total	**0·1**	—	**1·1**	**1·1**	**2·6**
Total of Fishing	**13·3**	**19·6**	**23·2**	**27·5**	**31·3**

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
C. *Mining.*					
Miners—					
Males under 15	5·5	4·7	5·1	6·9	4·6
,, 15—20		7·5	9·1	11·4	12·9
,, 20—25	14·4	8·1	8·4	9·1	12·1
,, 25—65		20·6	27·3	33·5	37·7
,, over 65		0·6	0·5	0·7	0·8
Total	19·9	41·5	50·4	61·6	68·1
Females under 15	0·9	—	—	—	—
,, over 15		0·1	0·2	0·4	0·4
Total	0·9	0·1	0·2	0·4	0·4
Total of Miners	20·8	41·6	50·6	62·0	68·5
Quarrying and Brickmaking—					
Males under 15	0·7	0·3	0·3	0·6	0·3
,, 15—20		0·9	1·0	1·5	1·6
,, 20—25	4·6	1·4	1·3	2·2	2·1
,, 25—65		7·1	7·6	9·2	9·5
,, over 65		0·2	0·3	0·5	0·7
Total	5·3	9·9	10·5	14·0	14·2
Females under 15	—	—	—	0·1	—
,, over 15		0·1	0·1	0·2	0·4
Total	—	0·1	0·1	0·3	0·4
Total of Quarrying, &c.	5·3	10·0	10·6	14·3	14·6
Salt and Water Works—					
Males under 15	—	—	—	—	—
,, 15—20	—	—	—	—	—
,, 20—25	0·1	—	0·1	—	—
,, 25—65		0·2	0·2	0·3	0·4
,, over 65		—	—	—	—
Total	0·1	0·2	0·3	0·3	0·4
Females under 15	—	—	—	—	—
,, over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Salt and Water Works	0·1	0·2	0·3	0·3	0·4
Total of Mining	26·2	51·8	61·5	76·6	83·5

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
D. *Building.*					
Management—					
Males under 15	0·1	—	—	—	—
„ 15—20		0·2	0·4	0·5	0·5
„ 20—25	1·6	0·2	0·5	0·5	0·6
„ 25—65		1·3	2·9	3·2	4·2
„ over 65		0·1	0·3	0·3	0·3
Total	**1·7**	**1·8**	**4·1**	**4·5**	**5·6**
Females under 15	—	—	—	—	—
„ over 15		0·1	—	—	—
Total	—	**0·1**	—	—	—
Total of Management	**1·7**	**1·9**	**4·1**	**4·5**	**5·6**
Operative—*					
Males under 15	8·0	0·8	1·2	1·6	1·6
„ 15—20		7·8	10·1	13·6	14·9
„ 20—25	43·6	9·6	11·7	13·9	17·1
„ 25—65		37·0	38·4	47·0	57·5
„ over 65		3·1	3·6	4·1	4·0
Total	**51·6**	**58·3**	**65·0**	**80·2**	**95·1**
Females under 15	0·1	—	—	—	—
„ over 15		—	—	—	0·1
Total	**0·1**	—	—	—	**0·1**
Total of Operative	**51·7**	**58·3**	**65·0**	**80·2**	**95·2**
Roadmaking—†					
Males under 15	0·4	0·1	0·2	0·2	—
„ 15—20		0·5	0·8	0·4	0·4
„ 20—25	6·1	1·5	1·9	1·1	1·0
„ 25—65		6·7	8·9	7·7	7·8
„ over 65		0·4	0·6	0·5	0·8
Total	**6·5**	**9·2**	**12·4**	**9·9**	**10·0**
Females under 15	—	—	—	—	—
„ over 15		—	—	—	—
Total	—	—	—	—	—
Total of Roadmaking	**6·5**	**9·2**	**12·4**	**9·9**	**10·0**
„ Building	**59·9**	**69·4**	**81·5**	**94·6**	**110·8**

* "Operative Builders" includes all labourers returned as employed in Building, whether skilled or not, *e.g.*, bricklayers' labourers count as bricklayers.

† "Roadmaking" includes railway navvies and platelayers.

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
E. *Manufacture.*					
Machinery and Tools—					
Males under 15	1·4	0·4	0·6	1·0	1·0
„ 15—20		2·1	3·8	4·9	6·4
„ 20—25	4·9	2·5	3·9	5·7	6·6
„ 25—65		6·7	9·1	14·1	19·8
„ over 65		0·4	0·3	0·4	0·6
Total	6·3	12·1	17·7	26·1	34·4
Females under 15	0·1	—	—	—	—
„ over 15		0·2	0·4	0·2	0·3
Total	0·1	0·2	0·4	0·2	0·3
Total of Machinery and Tools	6·4	12·3	18·1	26·3	34·7
Shipbuilding—					
Males under 15	1·0	0·1	0·4	0·7	0·4
„ 15—20		0·7	1·4	2·4	2·4
„ 20—25	2·7	0·9	2·1	3·2	3·2
„ 25—65		2·6	5·1	9·8	12·0
„ over 65		0·2	0·3	0·3	0·5
Total	3·7	4·5	9·3	16·4	18·5
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Shipbuilding	3·7	4·5	9·3	16·4	18·5
Metal Workers—					
Males under 15	6·0	2·2	2·7	3·3	2·3
„ 15—20		7·0	8·8	11·5	12·9
„ 20—25	19·4	7·0	8·6	10·3	12·0
„ 25—65		21·0	25·3	33·4	42·2
„ over 65		1·1	1·3	1·6	1·8
Total	25·4	38·3	46·7	60·1	71·2
Females under 15	—	—	—	—	—
„ over 15	—	0·3	0·2	0·4	0·5
Total	—	0·3	0·2	0·4	0·5
Total of Metal Workers	25·4	38·6	46·9	60·5	71·7
Manufacture—Carried forward	35·5	55·4	74·3	103·2	124·9

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	35·5	55·4	74·3	103·2	124·9
Earthenware, &c.—					
Males under 15	0·5	0·4	0·4	0·5	0·2
„ 15—20		0·6	0·7	0·8	0·7
„ 20—25	1·0	0·4	0·5	0·6	0·6
„ 25—65		1·1	1·6	2·2	2·1
„ over 65		—	—	—	—
Total	**1·5**	**2·5**	**3·2**	**4·1**	**3·6**
Females under 15.....	0·2	0·1	0·1	0·2	0·1
„ over 15.....		0·3	0·5	1·0	1·3
Total	**0·2**	**0·4**	**0·6**	**1·2**	**1·4**
Total of Earthenware, &c.....	**1·7**	**2·9**	**3·8**	**5·3**	**5·0**
Fuel, Gas, and Chemicals—					
Males under 15	—	0·1	—	0·1	—
„ 15—20	—	0·1	0·4	0·4	0·2
„ 20—25	0·7	0·5	0·4	0·6	0·7
„ 25—65		2·3	2·6	4·1	4·3
„ over 65		0·2	—	0·3	0·2
Total	**0·7**	**3·2**	**3·4**	**5·5**	**5·4**
Females under 15.....	0·1	—	0·1	0·1	0·1
„ over 15.....		0·2	0·3	0·3	0·5
Total	**0·1**	**0·2**	**0·4**	**0·4**	**0·6**
Total of Fuel, Gas, &c.....	**0·8**	**3·4**	**3·8**	**5·9**	**6·0**
Furs, Leather, Glue, &c.—					
Males under 15	0·6	0·3	0·4	0·2	0·1
„ 15—20		0·8	0·8	0·8	0·8
„ 20—25	2·8	0·6	0·6	0·8	0·7
„ 25—65		2·5	2·6	3·1	3·5
„ over 65		0·2	0·1	0·2	0·1
Total	**3·4**	**4·4**	**4·5**	**5·1**	**5·2**
Females under 15.....	0·2	—	—	—	—
„ over 15.....		0·3	0·7	0·7	0·8
Total	**0·2**	**0·3**	**0·7**	**0·7**	**0·8**
Total of Furs, Leather, &c.....	**3·6**	**4·7**	**5·2**	**5·8**	**6·0**
Manufacture—Carried forward.....	41·6	66·4	87·1	120·2	141·9

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	41·6	66·4	87·1	120·2	141·9
Wood, Furniture, and Carriages—					
Males under 15	3·2	0·7	1·0	1·1	0·7
,, 15—20		3·5	4·2	4·3	4·4
,, 20—25	16·0	3·3	3·7	3·8	4·4
,, 25—65		13·7	13·8	13·7	16·1
,, over 65		1·3	1·1	1·3	1·3
Total	**19·2**	**22·5**	**23·8**	**24·2**	**26·9**
Females under 15	—	—	0·1	0·1	0·1
,, over 15	—	0·3	1·2	1·9	2·3
Total	—	**0·3**	**1·3**	**2·0**	**2·4**
Total of Wood, &c.	**19·2**	**22·8**	**25·1**	**26·2**	**29·3**
Paper, Floorcloth, and Waterproof—					
Males under 15	0·1	0·2	0·4	0·2	0·3
,, 15—20		0·3	0·5	0·8	0·9
,, 20—25	0·9	0·2	0·4	0·7	0·7
,, 25—65		1·1	1·2	2·3	3·1
,, over 65		—	—	0·1	0·1
Total	**1·0**	**1·8**	**2·5**	**4·1**	**5·1**
Females under 15	0·9	0·3	0·4	0·5	0·6
,, over 15		2·5	3·2	4·0	6·1
Total	**0·9**	**2·8**	**3·6**	**4·5**	**6·7**
Total of Paper, &c.	**1·9**	**4·6**	**6·1**	**8·6**	**11·8**
Textiles and Dyeing—					
Males under 15	25·4	13·9	8·4	8·9	5·0
,, 15—20		16·8	10·4	10·8	10·5
,, 20—25	79·2	13·0	8·3	7·0	6·8
,, 25—65		62·3	50·5	42·3	34·2
,, over 65		6·8	6·5	5·8	4·7
Total	**104·6**	**112·8**	**84·1**	**74·8**	**61·2**
Females under 15	76·4	17·0	14·6	17·3	10·2
,, over 15		117·6	116·6	119·0	119·2
Total	**76·4**	**134·6**	**131·2**	**136·3**	**129·4**
Total of Textiles, &c.	**181·0**	**247·4**	**215·3**	**211·1**	**190·6**
Manufacture—Carried forward.....	243·7	341·2	333·6	366·1	373·6

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	243·7	341·2	333·6	366·1	373·6
Dress—					
Males under 15	8·7	3·1	2·7	2·0	1·2
„ 15—20		8·0	6·1	6·1	6·6
„ 20—25	37·9	7·5	5·5	5·5	6·1
„ 25—65		33·8	29·9	29·8	29·3
„ over 65		2·8	2·9	3·0	3·3
Total	**46·6**	**55·2**	**47·1**	**46·4**	**46·5**
Females under 15	29·3	1·9	1·4	2·2	1·6
„ over 15		53·0	54·1	53·9	60·3
Total	**29·3**	**54·9**	**55·5**	**56·1**	**61·9**
Total of Dress.....	**75·9**	**110·1**	**102·6**	**102·5**	**108·4**
Food, Drink, and Smoking—					
Males under 15	3·0	0·8	1·6	1·2	0·9
„ 15—20		3·9	3·7	4·1	4·8
„ 20—25	10·8	3·0	3·3	3·6	4·1
„ 25—65		10·0	11·9	13·0	16·4
„ over 65		0·6	0·4	0·5	0·7
Total	**13·8**	**18·3**	**20·9**	**22·4**	**26·9**
Females under 15	0·5	—	0·1	0·2	0·2
„ over 15		1·1	1·5	2·2	4·1
Total	**0·5**	**1·1**	**1·6**	**2·4**	**4·3**
Total of Food, &c.....	**14·3**	**19·4**	**22·5**	**24·8**	**31·2**
Watches, Instruments, and Toys—					
Males under 15	0·2	0·1	0·1	0·1	0·1
„ 15—20		0·4	0·4	0·6	0·8
„ 20—25	1·4	0·2	0·4	0·4	0·7
„ 25—65		1·1	1·6	1·7	1·9
„ over 65		0·1	0·1	0·1	0·1
Total	**1·6**	**1·9**	**2·6**	**2·9**	**3·6**
Females under 15	—	—	—	—	—
„ over 15	—	—	0·1	0·1	0·2
Total	—	—	**0·1**	**0·1**	**0·2**
Total of Watches, &c.....	**1·6**	**1·9**	**2·7**	**3·0**	**3·8**
Manufacture—Carried forward.....	335 5	472·6	461·4	496·4	517·0

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.
[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	335·5	472·6	461·4	496·4	517·0
Printing and Bookbinding—					
Males under 15	1·3	0·5	0·8	0·8	0·7
„ 15—20		1·2	1·8	2·1	2·5
„ 20—25	2·4	0·8	1·3	1·4	1·7
„ 25—65		1·9	2·7	3·6	4·9
„ over 65		0·2	0·1	0·2	0·1
Total	**3·7**	**4·6**	**6·7**	**8·1**	**9·9**
Females under 15	0·3	0·1	0·2	0·4	0·4
„ over 15		0·6	1·3	1·6	3·3
Total	**0·3**	**0·7**	**1·5**	**2·0**	**3·7**
Total of Printing, &c.....	**4·0**	**5·3**	**8·2**	**10·1**	**13·6**
Unspecified—*					
Males under 15	1·5	0·2	1·3	0·5	1·0
„ 15—20		0·5	1·6	1·1	3·1
„ 20—25	4·3	0·3	1·2	1·1	2·6
„ 25—65		0·8	3·7	5·2	11·8
„ over 65		0·1	0·3	0·2	0·5
Total	**5·8**	**1·9**	**8·1**	**8·1**	**19·0**
Females under 15	4·4	—	0·1	0·6	0·6
„ over 15		—	2·8	2·6	6·9
Total	**4·4**	—	**2·9**	**3·2**	**7·5**
Total of Unspecified	**10·2**	**1·9**	**11·0**	**11·3**	**26·5**
„ Manufacture	**349·7**	**479·8**	**480·6**	**517·8**	**557·1**
F. *Transport.*					
Navigation and Docks—†					
Males under 15	2·0	3·8	3·4	6·3	6·6
„ 15—20		3·3	3·4	4·1	4·7
„ 20—25	12·4	3·6	3·9	3·8	3·9
„ 25—65		15·2	18·1	20·6	22·0
„ over 65		1·1	1·5	1·5	1·6
Total	**14·4**	**27·0**	**30·3**	**36·3**	**38·8**
Females under 15	0·2	0·5	0·5	1·4	1·8
„ over 15		0·5	1·0	1·8	0·8
Total	**0·2**	**1·0**	**1·5**	**3·2**	**2·6**
Total of Navigation, &c.....	**14·6**	**28·0**	**31·8**	**39·5**	**41·4**
Transport—Carried forward.....	14·6	28·0	31·8	39·5	41·4

* "Unspecified" in Manufacture contains, in addition to engineers and firemen, mechanics, machine minders, and workers who did not specify with what branch of Manufacture they were connected.

† "Navigation" includes only seamen who were in port.

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Transport—Brought forward.....	14·6	28·0	31·8	39·5	41·4
Railways—					
Males under 15	—	0·1	0·1	0·2	0·3
„ 15—20		0·3	1·0	1·5	2·1
„ 20—25	0·3	0·6	1·2	2·3	3·6
„ 25—65		2·6	4·6	7·7	12·2
„ over 65		—	0·1	0·2	0·3
Total	0·3	3·6	7·0	11·9	18·5
Females under 15	—	—	—	—	—
„ over 15		—	—	—	0·1
Total	—	—	—	—	0·1
Total of Railways.....	0·3	3·6	7·0	11·9	18·6
Roads—					
Males under 15	0·9	0·2	0·4	0·5	0·4
„ 15—20		1·5	1·5	2·0	2·7
„ 20—25	8·7	2·1	2·0	2·8	4·0
„ 25—65		10·7	12·1	14·8	17·1
„ over 65		0·9	1·1	0·8	0·8
Total	9·6	15·4	17·1	20·9	25·0
Females under 15	0·3	—	—	—	—
„ over 15		0·4	0·4	0·4	0·2
Total	0·3	0·4	0·4	0·4	0·2
Total of Roads	9·9	15·8	17·5	21·3	25·2
„ Transport	24·8	47·4	56·3	72·7	85·2
G. *Dealing.*					
Raw Materials—					
Males under 15	0·2	—	0·1	—	—
„ 15—20		0·3	0·6	0·4	0·4
„ 20—25	1·8	0·3	0·6	0·5	0·6
„ 25—65		2·9	4·5	4·7	5·1
„ over 65		0·3	0·4	0·6	0·6
Total	2·0	3·8	6·2	6·2	6·7
Females under 15	0·3	—	—	—	—
„ over 15		0·2	0·5	0·1	0·2
Total	0·3	0·2	0·5	0·1	0·2
Total of Raw Materials.....	2·3	4·0	6·7	6·3	6·9
Dealing—Carried forward.....	2·3	4·0	6·7	6·3	6·9

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Dealing—Brought forward.....	2·3	4·0	6·7	6·3	6·9
Clothing Materials and Dress—					
Males under 15	1·1	0·3	0·4	0·5	0·5
„ 15—20		1·8	2·7	2·6	3·0
„ 20—25	2·8	1·0	1·6	1·6	1·7
„ 25—65		2·6	4·0	4·0	5·1
„ over 65		0·1	0·1	0·2	0·3
Total	**3·9**	**5·8**	**8·8**	**8·9**	**10·6**
Females under 15	0·1	—	—	—	0·1
„ over 15		0·4	1·2	1·6	2·5
Total	**0·1**	**0·4**	**1·2**	**1·6**	**2·6**
Total of Clothing, &c.....	**4·0**	**6·2**	**10·0**	**10·5**	**13·2**
Food, Drink, and Smoking—					
Males under 15	1·8	1·3	1·2	1·3	1·4
„ 15—20		3·2	3·7	4·8	7·3
„ 20—25	15·8	3·0	2·9	4·1	5·9
„ 25—65		19·3	19·6	21·6	26·0
„ over 65		1·8	1·8	2·0	1·9
Total	**17·6**	**28·6**	**29·2**	**33·8**	**42·5**
Females under 15	6·3	—	0·1	0·1	0·2
„ over 15		10·1	11·7	11·5	13·3
Total	**6·3**	**10·1**	**11·8**	**11·6**	**13·5**
Total of Food, &c.....	**23·9**	**38·7**	**41·0**	**45·4**	**56·0**
Lodging and Coffee Houses—					
Males under 15	—	—	—	—	—
„ 15—20	—	—	—	—	—
„ 20—25	—	—	—	—	—
„ 25—65	0·1	0·3	0·3	0·4	0·4
„ over 65	—	0·1	0·1	0·1	0·1
Total	**0·1**	**0·4**	**0·4**	**0·5**	**0·5**
Females under 15	2·7	—	—	—	—
„ over 15		5·3	4·6	8·6	5·5
Total	**2·7**	**5·3**	**4·6**	**8·6**	**5·5**
Total of Lodging Houses, &c.....	**2·8**	**5·7**	**5·0**	**9·1**	**6·0**
Dealing—Carried forward.....	33·0	54·6	62·7	71·3	82·1

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Dealing—Brought forward.....	33·0	54·6	62·7	71·3	82·1
Furniture, Utensils, and Stationery—					
Males under 15	0·5	0·3	0·3	0·4	0·5
„ 15—20		0·8	1·1	1·5	1·7
„ 20—25	2·6	0·7	0·9	1·1	1·4
„ 25—65		2·8	4·1	4·0	5·2
„ over 65		0·1	0·2	0·2	0·2
Total	**3·1**	**4·7**	**6·6**	**7·2**	**9·0**
Females under 15	0·2	—	—	—	0·1
„ over 15		0·6	1·1	1·4	2·3
Total	**0·2**	**0·6**	**1·1**	**1·4**	**2·4**
Total of Furniture, &c.....	**3·3**	**5·3**	**7·7**	**8·6**	**11·4**
General Dealers and Unspecified—					
Males under 15	0·7	0·1	0·4	0·3	0·2
„ 15—20		0·9	1·3	1·3	1·3
„ 20—25	9·2	1·3	1·4	1·9	1·8
„ 25—65		7·1	9·2	11·9	13·7
„ over 65		0·7	0·9	1·3	1·2
Total	**9·9**	**10·1**	**13·2**	**16·7**	**18·2**
Females under 15	2·6	0·1	0·1	0·2	0·3
„ over 15		4·3	5·4	9·6	10·7
Total	**2·6**	**4·4**	**5·5**	**9·8**	**11·0**
Total of General Dealers, &c....	**12·5**	**14·5**	**18·7**	**26·5**	**29·2**
„ Dealing	**48·8**	**74·4**	**89·1**	**106·4**	**122·7**
H. *Industrial Service.*					
Commercial—					
Males under 15	1·6	0·3	0·4	0·9	1·2
„ 15—20		2·2	3·2	5·7	9·3
„ 20—25	5·5	1·7	2·4	4·4	7·1
„ 25—65		3·1	4·4	7·3	14·0
„ over 65		0·2	0·3	0·3	0·5
Total	**7·1**	**7·5**	**10·7**	**18·6**	**32·1**
Females under 15	—	—	—	—	0·1
„ over 15	—	—	—	0·2	1·4
Total	—	—	—	**0·2**	**1·5**
Total of Commercial.....	**7·1**	**7·5**	**10·7**	**18·8**	**33·6**
Industrial Service—Carried forward.....	7·1	7·5	10·7	18·8	33·6

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Industrial Service—Brought forward...	7·1	7·5	10·7	18·8	33 6
General Labour—					
Males under 15	3·4	0·7	0·7	0·8	0·7
„ 15—20		3·3	3·4	4·1	6·3
„ 20—25	35·8	5·8	4·9	5·3	8·6
„ 25—65		27·9	29·5	33·1	45·5
„ over 65		3·0	3·2	3·7	5·8
Total	**39·2**	**40·7**	**41·7**	**47·0**	**66·9**
Females under 15	2·3	0·1	—	—	—
„ over 15		1·6	1·3	1·5	1·0
Total	**2·3**	**1·7**	**1·3**	**1·5**	**1·0**
Total of General Labour	**41·5**	**42·4**	**43·0**	**48·5**	**67·9**
„ Industrial Service	**48·6**	**49·9**	**53·7**	**67·3**	**101·5**
Industry—Total.....	831·5	1090·9	1122·3	1221·1	1326·1
Public Service and Professional.					
Administration—					
Males under 15	—	—	0·1	0·3	0·3
„ 15—20	—	0·2	0·3	0·6	1·0
„ 20—25	3·8	0·3	0·6	0·9	1·2
„ 25—65		4·7	5·2	5·6	5·8
„ over 65		0·7	0·7	0·6	0·7
Total	**3·8**	**5·9**	**6·9**	**8·0**	**9·0**
Females under 15	0·1	—	—	—	—
„ over 15		0·3	0·4	0·6	1·1
Total	**0·1**	**0·3**	**0·4**	**0·6**	**1·1**
Total of Administration....	**3·9**	**6·2**	**7·3**	**8·6**	**10·1**
Army and Navy—*					
Males under 15	0·8	—	—	—	—
„ 15—20		0·3	1·2	0·7	0·9
„ 20—25	4·3	1·1	1·9	1·2	1·7
„ 25—65		5·0	5·3	5·4	5·3
„ over 65		2·2	1·7	0·8	0·5
Total	**5·1**	**8·6**	**10·1**	**8·1**	**8·4**
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Army and Navy....	**5·1**	**8·6**	**10·1**	**8·1**	**8·4**

* "Army and Navy" includes only soldiers and sailors who were in Scotland on the census night.

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Public Service, &c.—*Contd.*					
Police and Prisons—					
Males under 15	—	—	—	—	—
„ 15—20	—	—	—	—	—
„ 20—25	1·6	0·2	0·4	0·5	0·6
„ 25—65		1·7	2·4	2·9	3·5
„ over 65		—	0·1	—	—
Total	1·6	1·9	2·9	3·4	4·1
Females under 15	—	—	—	—	—
„ over 15	—	—	0·2	0·2	0·1
Total	—	—	0·2	0·2	0·1
Total of Police and Prisons	1·6	1·9	3·1	3·6	4·2
Law—					
Males under 15	1·1	0·1	0·1	0·1	0·1
„ 15—20		1·2	1·3	1·4	1·7
„ 20—25	4·6	1·0	0·9	1·1	1·4
„ 25—65		2·8	2·8	2·9	3·2
„ over 65		0·2	0·2	0·2	0·3
Total	5·7	5·3	5·3	5·7	6·7
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Law	5·7	5·3	5·3	5·7	6·7
Medicine—					
Males under 15	0·5	0·1	0·1	0·1	0·1
„ 15—20		0·7	0·9	1·1	1·5
„ 20—25	3·2	0·8	1·1	1·1	1·8
„ 25—65		2·5	2·4	2·6	3·3
„ over 65		0·1	0·2	0·2	0·3
Total	3·7	4·2	4·7	5·1	7·0
Females under 15	2·1	—	—	—	—
„ over 15		2·4	2·4	2·3	2·8
Total	2·1	2·4	2·4	2·3	2·8
Total of Medicine	5·8	6·6	7·1	7·4	9·8

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Public Service, &c.—*Contd.*					
Art and Amusement—					
Males under 15	0·3	0·1	0·1	—	—
„ 15—20		0·5	0·3	0·4	0·6
„ 20—25	1·2	0·6	0·4	0·5	0·6
„ 25—65		1·5	1·5	1·7	2·2
„ over 65		—	—	0·1	0·2
Total	1·5	2·7	2·3	2·7	3·6
Females under 15	0·1	—	—	—	—
„ over 15		0·3	0·2	0·7	1·1
Total	0·1	0·3	0·2	0·7	1·1
Total of Art, &c.	1·6	3·0	2·5	3·4	4·7
Literature and Science—					
Males under 15	—	—	—	—	—
„ 15—20	—	—	—	—	—
„ 20—25	0·1	0·1	—	0·1	0·3
„ 25—65		0·2	0·4	0·3	0·6
„ over 65		—	—	—	—
Total	0·1	0·3	0·4	0·4	0·9
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Literature, &c.	0·1	0·3	0·4	0·4	0·9
Education—					
Males under 15	0·3	0·1	0·2	0·3	0·2
„ 15—20		0·6	1·6	1·2	1·5
„ 20—25	4·7	1·0	0·9	0·8	1·1
„ 25—65		4·1	4·1	4·2	4·8
„ over 65		0·3	0·4	0·3	0·1
Total	5·0	6·1	7·2	6·8	7·7
Females under 15	2·3	—	0·1	0·1	0·2
„ over 15		4·4	5·9	6·4	10·9
Total	2·3	4·4	6·0	6·5	11·1
Total of Education	7·3	10·5	13·2	13·3	18·8

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Public Service, &c.—*Contd.*					
Religion—					
Males under 15	0·1	—	—	—	—
„ 15—20		—	0·1	—	—
„ 20—25	2·9	0·2	0·4	—	0·3
„ 25—65		3·6	4·3	4·3	4·9
„ over 65		0·4	0·6	0·8	0·9
Total	3·0	4·2	5·4	5·1	6·1
Females under 15	—	—	—	—	—
„ over 15	—	—	0·3	0·6	0·5
Total	—	—	0·3	0·6	0·5
Total of Religion	3·0	4·2	5·7	5·7	6·6
Total of Public Service, &c.	34·1	46·6	54·7	56·2	70·2
Domestic Service.					
In-door—					
Males under 15	6·9	0·5	0·7	0·4	0·2
„ 15—20		1·7	1·3	1·5	1·1
„ 20—25	6·9	1·2	1·0	1·3	1·0
„ 25—65		3·2	2·9	4·0	3·1
„ over 65		0·1	0·1	0·4	0·2
Total	13·8	6·7	6·0	7·6	5·6
Females under 15	111·1	8·4	8·6	8·1	6·7
„ over 15		106·4	127·4	117·5	128·7
Total	111·1	114·8	136·0	125·6	135·4
Total of In-door Servants	124·9	121·5	142·0	133·2	141·0
Out-door—					
Males under 15	0·8	0·1	0·2	0·2	0·2
„ 15—20		0·6	1·0	1·3	2·4
„ 20—25	3·6	0·6	1·1	1·7	3·0
„ 25—65		2·6	5·1	7·9	16·1
„ over 65		0·1	0·3	0·5	1·8
Total	4·4	4·0	7·7	11·6	23·5*
Females under 15	—	—	—	—	—
„ over 15		—	0·3	0·4	0·4
Total	—	—	0·3	0·4	0·4
Total of Out-door Servants	4·4	4·0	8·0	12·0	23·9
Domestic Service—Carried forward	129·3	125·5	150·0	145·2	164·9

* In the Census Returns, public and private coachmen, and market and domestic gardeners, are confused. Consequently the number of out-door male servants in 1881 is largely exaggerated, or else the figures for the previous decades are considerably under

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.
[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Domestic Service—*Contd.*					
Domestic Service—Brought forward...	129·3	125·5	150·0	145·2	164·9
Extra—					
Males under 15	0·3	0·1	0·1	0·1	0·1
„ 15—20		0·2	0·2	0·3	0·4
„ 20—25	0·8	0·6	0·1	0·1	0·3
„ 25—65		0·3	0·8	0·9	1·3
„ over 65		—	—	—	0·1
Total.....	1·1	1·2	1·2	1·4	2·2
Females under 15.....	4·4	—	—	—	0·1
„ over 15.....		11·3	13·4	13·1	15·4
Total.....	4·4	11·3	13·4	13·1	15·5
Total of Extra Service.....	5·5	12·5	14·6	14·5	17·7
Total of Domestic Service...	134·8	138·0	164·6	159·7	182·6
Property Owning and Indefinite.					
Property Owners—†					
Males under 15	0·5	—	—	—	—
„ 15—20		0·4	—	—	—
„ 20—25	11·5	0·5	0·2	0·1	—
„ 25—65		4·9	3·5	6·1	9·0
„ over 65		1·9	1·7	8·7	11·2
Total	12·0	7·7	5·4	14·9	20·2
Females under 15.....	46·6	—	—	—	—
„ over 15.....		21·4	16·7	28·0	34·0
Total	46·6	21·4	16·7	28·0	34·0
Total of Property Owners....	58·6	29·1	22·1	42·9	54·2
Indefinite—					
Males under 15	—	—	—	—	—
„ 15—20	—	—	—	—	—
„ 20—25	47·9	3·1	1·7	2·4	1·8
„ 25—65		6·2	5·3	6·4	5·2
„ over 65		3·3	3·7	5·6	7·6
Total	47·9	12·6	10·7	14·4	14·6
Females under 15.....	—	—	—	—	—
„ over 15.....	—	—	—	—	—
Total	—	—	—	—	—
Total of Indefinite.....	47·9	12·6	10·7	14·4	14·6
Total of Property Owning, &c...	106·5	41·7	32·8	57·3	68·8

the mark. A reference to the full statement of occupations (which is in the library of the Statistical Society) will show that under the heading "Gardeners" (Agriculture) and "Coachmen" (Transport) there is a corresponding falling off in 1881.

† "Property Owners" only include those who so returned themselves. In 1881 no

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Estimated to be dependent on each Class of Workers.*					
Agriculture— Males under 15	124·8	125·7	122·9	113·7	99·8
„ 15—20		—	—	—	—
Total	**124·8**	**125·7**	**122·9**	**113·7**	**99·8**
Females under 15	284·1	126·4	125·0	115·1	99·6
„ over 15		137·4	139·2	117·3	89·5
Total	**284·1**	**263·8**	**264·2**	**232·4**	**189·1**
Total of Dependents on Agriculture	**408·9**	**389·5**	**387·1**	**346·1**	**288·9**
Fishing— Males under 15	10·4	12·5	14·7	18·0	18·5
„ 15—20		1·1	1·2	1·5	1·0
Total	**10·4**	**13·6**	**15·9**	**19·5**	**19·5**
Females under 15	23·1	12·2	14·2	17·6	18·2
„ over 15		18·2	19·7	23·5	22·7
Total	**23·1**	**30·4**	**33·9**	**41·1**	**40·9**
Total of Dependents on Fishing	**33·5**	**44·0**	**49·8**	**60·6**	**60·4**
Mining— Males under 15	12·3	23·2	30·7	37·6	44·3
„ 15—20		—	—	—	—
Total	**12·3**	**23·2**	**30·7**	**37·6**	**44·3**
Females under 15	36·0	26·8	34·4	43·1	47·3
„ over 15		39·8	49·5	60·0	63·9
Total	**36·0**	**66·6**	**83·9**	**103·1**	**111·2**
Total of Dependents on Mining	**48·3**	**89·8**	**114·6**	**140·7**	**155·5**
Building— Males under 15	41·3	44·6	50·2	58·9	70·0
„ 15—20		3·4	1·7	0·4	2·5
Total	**41·3**	**48·0**	**51·9**	**59·3**	**72·5**
Females under 15	99·1	43·2	49·0	58·2	69·0
„ over 15		64·5	71·2	81·4	94·3
Total	**99·1**	**107·7**	**120·2**	**139·6**	**163·3**
Total of Dependents on Building	**140·4**	**155·7**	**172·1**	**198·9**	**235·8**

account was taken of them at all, and the figures given above are an estimate based on the previous returns, for the sake of uniformity; no statistical value attaches to the figures in any case.

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Contd.*					
Manufacture—					
Males under 15	125·9	140·0	145·4	166·4	194·0
„ 15—20		—	—	—	—
Total	**125·9**	**140·0**	**145·4**	**166·4**	**194·0**
Females under 15.....	250·9	135·0	141·5	157·6	186·5
„ over 15.....		170·3	172·7	198·1	217·6
Total	**250·9**	**305·3**	**314·2**	**355·7**	**404·1**
Total of Dependents on Manufacture....	**376·8**	**445·3**	**459·6**	**522·1**	**598·1**
Transport—					
Males under 15	17·9	24·8	31·9	38·3	45·5
„ 15—20		2·5	3·2	3·5	4·0
Total	**17·9**	**27·3**	**35·1**	**41·8**	**49·5**
Female under 15.....	40·9	26·7	33·5	41·9	49·2
„ over 15.....		39·9	48·0	58·5	68·6
Total	**40·9**	**66·6**	**81·5**	**100·4**	**117·8**
Total of Dependents on Transport	**58·8**	**93·9**	**116·6**	**142·2**	**167·3**
Dealing—					
Males under 15	27·1	33·5	40·5	46·5	54·7
„ 15—20		2·2	1·4	1·3	1·0
Total	**27·1**	**35·7**	**41·9**	**47·8**	**55·7**
Females under 15.....	52·8	33·6	40·5	46·5	54·5
„ over 15.....		36·6	42·3	47·0	53·8
Total	**52·8**	**70·2**	**82·8**	**93·5**	**108·3**
Total of Dependents on Dealing.....	**79·9**	**105·9**	**124·7**	**141·3**	**164·0**
Industrial Service—					
Males under 15	35·1	30·4	33·8	40·7	59·5
„ 15—20		2·8	2·1	0·6	—
Total	**35·1**	**33·2**	**35·9**	**41·3**	**59·5**
Females under 15.....	77·6	29·8	33·1	40·6	59·0
„ over 15.....		42·9	46·8	55·2	78·4
Total	**77·6**	**72·7**	**79·9**	**95·8**	**137·4**
Total Dependents on Industrial Service	**112·7**	**105·9**	**115·8**	**137·1**	**196·9**

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Contd.*					
Public Service and Professional—					
Males under 15	22·3	26·2	28·5	30·7	33·8
„ 15—20		4·4	2·8	3·2	3·0
Total	**22·3**	**30·6**	**31·3**	**33·9**	**36·8**
Females under 15	48·3	25·5	27·4	29·8	33·0
„ over 15		35·0	37·0	36·9	40·2
Total	**48·3**	**60·5**	**64·4**	**66·7**	**73·2**
Total of Dependents on Public Service	**70·6**	**91·1**	**95·7**	**100·6**	**110·0**
Domestic Service—					
Males under 15	3·2	2·7	5·8	8·9	17·6
„ 15—20		—	0·2	0·7	1·9
Total	**3·2**	**2·7**	**6·0**	**9·6**	**19·5**
Females under 15	7·8	2·8	5·7	8·9	17·2
„ over 15		4·0	7·7	11·4	22·5
Total	**7·8**	**6·8**	**13·4**	**20·3**	**39·7**
Total of Dependents on Domestic Service.....	**11·0**	**9·5**	**19·4**	**29·9**	**59·2**
Property Owning—					
Males under 15	10·7	5·0	3·6	6·4	9·3
„ 15—20		1·0	0·9	1·6	2·3
Total	**10·7**	**6·0**	**4·5**	**8·0**	**11·6**
Females under 15	22·3	4·8	3·4	6·1	9·0
„ over 15		7·0	5·0	8·5	12·2
Total	**22·3**	**11·8**	**8·4**	**14·6**	**21·2**
Total of Dependents on Property Owning	**33·0**	**17·8**	**12·9**	**22·6**	**32·8**

APPENDIX A (2)—*Contd.* SCOTLAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Contd.*					
Indefinite—					
Males under 15	46·5	6·3	5·5	6·7	5·3
„ 15—20		1·8	1·3	1·7	1·3
Total	**46·5**	**8·1**	**6·8**	**8·4**	**6·6**
Females under 15	92·8	6·1	5·2	6·4	5·2
„ over 15		8·9	7·6	8·8	7·2
Total	**92·8**	**15·0**	**12·8**	**15·2**	**12·4**
Total of Dependents on Indefinite....	**139·3**	**23·1**	**19·6**	**23·6**	**19·0**
Whole Population.					
Employed or Independent—					
Males under 15	134·0	48·8	47·9	52·5	39·7
„ 15—20		126·6	136·0	152·8	172·6
„ 20—25	630·3	128·6	128·0	138·4	166·6
„ 25—65		519·6	548·1	599·4	674·2
„ over 65		57·8	61·5	72·6	77·1
Total	**764·3**	**881·4**	**921·5**	**1015·7**	**1130·2**
Females under 15	342·6	32·1	28·8	34·4	25·9
„ over 15		403·7	424·1	444·2	491·6
Total	**342·6**	**435·8**	**452·9**	**478·6**	**517·5**
Total Employed, &c.....	**1106·9**	**1317·2**	**1374·4**	**1494·3**	**1647·7**
Dependent—					
Males under 15	477·5	474·9	513·5	572·8	652·3
„ 15—20		19·2	14·8	14·5	17·0
Total	**477·5**	**494·1**	**528·3**	**587·3**	**669·3**
Females under 15	1035·7	472·9	512·9	571·8	647·7
„ over 15		604·5	646·7	706·6	770·9
Total	**1035·7**	**1077·4**	**1159·6**	**1278·4**	**1418·6**
Total Dependent	**1513·2**	**1571·5**	**1687·9**	**1865·7**	**2087·9**
Total of Population	2620·1	2888·7	3062·3	3360·0	3735·6

APPENDIX A (3).

IRELAND.— *Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry.					
A. *Agriculture.*					
Farmers and their Relations—					
Males under 15	0·2	0·1	0·1	0·6	0·3
„ 15—20	459·6	397·2	14·6	15·9	65·8
„ 20—25			23·2	21·2	64·7
„ 25—65			331·5	306·8	360·0
„ over 65			54·4	69·2	81·2
Total	**459·8**	**397·3**	**423·8**	**413·7**	**572·0**
Females under 15	18·2	—	—	0·1	—
„ over 15		20·4	28·5	31·8	59·6
Total	**18·2**	**20·4**	**28·5**	**31·9**	**59·6**
Total of Farmers, &c.	**478·0**	**417·7**	**452·3**	**445·6**	**631·6**
Agricultural Labourers and Shepherds—					
Males under 15	92·2	62·0	35·3	46·2	17·2
„ 15—20	1110·6	788·1	124·2	101·8	58·3
„ 20—25			126·4	85·8	48·9
„ 25—65			297·9	252·0	151·4
„ over 65			21·4	25·9	24·2
Total	**1202·8**	**850·1**	**605·2**	**511·7**	**300·0**
Females under 15	122·9	12·1	5·8	8·9	2·6
„ over 15		132·1	63·9	62·2	33·4
Total	**122·9**	**144·2**	**69·7**	**71·1**	**36·0**
Total of Agricultural Labourers, &c.	**1325·7**	**994·3**	**674·9**	**582·8**	**336·0**
Nurserymen, Gardeners, &c.—					
Males under 15	—	—	0·1	0·1	0·1
„ 15—20	8·4	8·8	0·7	0·8	0·5
„ 20—25			0·9	1·1	1·0
„ 25—65			6·4	6·7	7·4
„ over 65			0·9	1·1	1·3
Total	**8·4**	**8·8**	**9·0**	**9·8**	**10·3**
Females under 15	—	—	—	—	—
„ over 15		—	—	0·3	0·2
Total	—	—	—	**0·3**	**0·2**
Total of Nurserymen, &c.	**8·4**	**8·8**	**9·0**	**10·1**	**10·5**
Agriculture—Carried forward...	1812·1	1420·8	1136·2	1038·5	978·1

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.
[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Agriculture—Brought forward.....	1812·1	1420·8	1136·2	1038·5	978·1
Drainage and Machinery Attendance—					
Males under 15	—	—	—	—	—
,, 15—20	—	—	—	—	—
,, 20—25	—	—	—	—	—
,, 25—65	—	—	—	0·1	0·1
,, over 65	—	—	—	—	—
Total	—	—	—	**0·1**	**0·1**
Females under 15	—	—	—	—	—
,, over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Drainage, &c., Attendance....	—	—	—	**0·1**	**0·1**
Breeding and Dealing (horses and cattle)—*					
Males under 15	10·5	9·9	8·3	0·1	—
,, 15—20	18·1	26·4	6·3	0·7	0·7
,, 20—25			3·5	1·1	1·1
,, 25—65			14·5	5·3	5·6
,, over 65			1·6	0·5	0·4
Total	**28·6**	**36·3**	**34·2**	**7·7**	**7·8**
Females under 15	3·7	1·7	1·5	—	—
,, over 15		1·0	0·9	0·1	—
Total	**3·7**	**2·7**	**2·4**	**0·1**	—
Total of Breeding, &c.....	**32·3**	**39·0**	**36·6**	**7·8**	**7·8**
,, Agriculture	**1844·4**	**1459·8**	**1172·8**	**1046·4**	**986·0**
B. *Fishing.*					
Fishermen—					
Males under 15	0·2	0·3	0·2	0·3	0·2
,, 15—20	8·9	10·4	1·0	1·2	1·6
,, 20—25			1·1	1·3	1·9
,, 25—65			5·1	6·0	6·4
,, over 65			0·5	0·6	0·7
Total	**9·1**	**10·7**	**7·9**	**9·4**	**10·8**
Females under 15	0·1	—	—	—	—
,, over 15		—	—	0·1	0·1
Total	**0·1**	—	—	**0·1**	**0·1**
Total of Fishing.....	**9·2**	**10·7**	**7·9**	**9·5**	**10·9**

* "Breeding."—Prior to 1871, a large number of persons (from 30,000 to 40,000) engaged about animals on farms, are described in the census as "herds and drovers," and have been included in this line, but in 1871 and 1881 the herds have apparently been counted with agricultural labourers.

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
C. *Mining.*					
Miners—					
Males under 15	0·1	0·2	0·1	0·3	0·1
„ 15—20	3·0	4·6	0·5	0·5	0·4
„ 20—25			0·8	0·5	0·4
„ 25—65			2·3	1·9	1·2
„ over 65			0·1	—	—
Total	3·1	4·8	3·8	3·2	2·1
Females under 15	—	—	—	—	—
„ over 15	—	0·3	0·1	0·1	—
Total	—	0·3	0·1	0·1	—
Total of Miners	3·1	5·1	3·9	3·3	2·1
Quarrying and Brickmaking—					
Males under 15	—	0·1	0·1	0·1	0·1
„ 15—20	5·2	6·3	0·8	0·7	0·7
„ 20—25			0·9	0·7	1·0
„ 25—65			3·8	3·4	3·4
„ over 65			0·1	0·2	0·3
Total	5·2	6·4	5·7	5·1	5·5
Females under 15	—	—	—	—	—
„ over 15	—	—	—	0·1	—
Total	—	—	—	0·1	—
Total of Quarrying, &c.	5·2	6·4	5·7	5·2	5·5
Salt and Water Works—					
Males under 15	—	—	—	—	—
„ 15—20	0·3	0·4	—	—	—
„ 20—25			0·1	0·1	0·1
„ 25—65			0·2	0·2	0·2
„ over 65			—	—	—
Total	0·3	0·4	0·3	0·3	0·3
Females under 15	0·1	—	—	—	—
„ over 15		0·1	0·1	—	—
Total	0·1	0·1	0·1	—	—
Total of Salt and Water Works	0·4	0·5	0·4	0·3	0·3
Total of Mining	8·7	12·0	10·0	8·8	7·9

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
D. *Building.*					
Management—					
Males under 15	—	—	—	—	—
„ 15—20	3·8	3·5	0·1	0·2	0·2
„ 20—25			0·4	0·4	0·3
„ 25—65			2·2	3·0	2·9
„ over 65			0·4	0·3	0·4
Total	**3·8**	**3·5**	**3·1**	**3·9**	**3·8**
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Management	**3·8**	**3·5**	**3·1**	**3·9**	**3·8**
Operative—*					
Males under 15	0·3	0·5	0·8	0·7	0·3
„ 15—20	67·6	50·3	8·1	6·5	5·8
„ 20—25			9·1	7·2	7·9
„ 25—65			35·6	32·5	31·2
„ over 65			3·8	3·9	3·9
Total	**67·9**	**50·8**	**57·4**	**50·8**	**49·1**
Females under 15	0·1	—	—	—	—
„ over 15		—	—	—	—
Total	**0·1**	—	—	—	—
Total of Operative	**68·0**	**50·8**	**57·4**	**50·8**	**49·1**
Road Making—†					
Males under 15	—	0·1	0·1	0·1	—
„ 15—20	0·6	3·3	0·5	0·2	0·3
„ 20—25			0·6	0·3	0·6
„ 25—65			3 6	2·0	2·4
„ over 65			0·2	0·2	—
Total	**0·6**	**3·4**	**5·0**	**2·8**	**3·3**
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Road Making	**0·6**	**3·4**	**5·0**	**2·8**	**3·3**
„ Building	**72·4**	**57·7**	**65·5**	**57·5**	**56·2**

* "Operative Builders" includes all labourers returned as employed in Building, whether skilled or not; *e.g.*, bricklayers' labourers count as bricklayers.

† "Road Making" includes railway navvies and platelayers.

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
E. *Manufacture.*					
Machinery and Tools—					
Males under 15	—	—	0·2	0·1	—
„ 15—20	4·1	3·4	0·6	0·9	0·7
„ 20—25			0·7	0·9	1·0
„ 25—65			2·6	3·2	3·2
„ over 65			0·3	0·2	0·2
Total	4·1	3·4	4·4	5·3	5·1
Females under 15	0·3	—	—	—	—
„ over 15		0·2	0·1	—	—
Total	0·3	0·2	0·1	—	—
Total of Machinery, &c.	4·4	3·6	4·5	5·3	5·1
Shipbuilding—					
Males under 15	—	—	—	—	—
„ 15—20	2·0	2·4	0·2	0·4	0·4
„ 20—25			0·5	0·3	0·5
„ 25—65			1·4	1·5	1·7
„ over 65			0·1	0·1	0·1
Total	2·0	2·4	2·2	2·3	2·7
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Shipbuilding	2·0	2·4	2·2	2·3	2·7
Metal Workers—					
Males under 15	0·7	0·7	0·8	0·8	0·3
„ 15—20	35·7	29·6	4·5	3·6	3·2
„ 20—25			4·4	3·7	3·7
„ 25—65			17·3	15·8	14·2
„ over 65			1·4	1·7	1·6
Total	36·4	30·3	28·4	25·6	23·0
Females under 15	0·1	—	—	—	—
„ over 15		—	0·1	0·2	0·1
Total	0·1	—	0·1	0·2	0·1
Total of Metal Workers	36·5	30·3	28·5	25·8	23·1
Manufacture—Carried forward	42·9	36·3	35·2	33·4	30·9

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	42·9	36·3	35·2	33·4	30·9
Earthenware, &c.—					
Males under 15	—	—	—	—	—
„ 15—20	0·5	0·5	—	0·2	0·1
„ 20—25			0·1	0·1	0·2
„ 25—65			0·2	0·3	0·3
„ over 65			—	—	—
Total	0·5	0·5	0·3	0·6	0·6
Females under 15	0·1	—	—	—	—
„ over 15		0·2	0·1	0·1	—
Total	0·1	0·2	0·1	0·1	—
Total of Earthenware, &c.....	0·6	0·7	0·4	0·7	0·6
Fuel, Gas, and Chemicals—					
Males under 15	—	—	—	—	—
„ 15—20	0·1	0·3	—	0·1	0·1
„ 20—25			0·1	0·1	0·1
„ 25—65			0·5	0·7	1·0
„ over 65			—	—	—
Total	0·1	0·3	0·6	0·9	1·2
Females under 15	—	—	—	—	—
„ over 15	—	—	0·1	0·2	0·1
Total	—	—	0·1	0·2	0·1
Total of Fuel, &c.....	0·1	0·3	0·7	1·1	1·3
Furs, Leather, Glue, &c.—					
Males under 15	0·1	0·1	0·1	0·1	—
„ 15—20	5·0	5·2	0·3	0·5	0·3
„ 20—25			0·5	0·3	0·2
„ 25—65			2·3	2·1	1·6
„ over 65			0·3	0·1	0·3
Total	5·1	5·3	3·5	3·1	2·4
Females under 15	0·8	—	0·1	0·1	—
„ over 15		1·5	0·8	0·9	0·6
Total	0·8	1·5	0·9	1·0	0·6
Total of Furs, &c.....	5·9	6·8	4·4	4·1	3·0
Manufacture—Carried forward.....	49·5	44·1	40·7	39·3	35·8

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	49·5	44·1	40·7	39·3	35·8
Wood, Furniture, and Carriages—					
Males under 15	0·4	0·4	0·6	0·6	0·2
„ 15—20	25·4	21·5	3·8	2·6	2·2
„ 20—25			3·8	2·5	2·8
„ 25—65			13·4	11·9	10·2
„ over 65			1·1	1·4	0·9
Total	**25·8**	**21·9**	**22·7**	**19·0**	**16·3**
Females under 15	0·5	—	—	0·1	—
„ over 15		0·9	1·4	1·3	1·0
Total	**0·5**	**0·9**	**1·4**	**1·4**	**1·0**
Total of Wood, &c.....	**26·3**	**22·8**	**24·1**	**20·4**	**17·3**
Paper, Floorcloth, and Waterproof—					
Males under 15	—	0·1	—	—	—
„ 15—20	0·9	0·7	0·1	0·1	0·1
„ 20—25			—	0·1	—
„ 25—65			0·3	0·2	0·2
„ over 65			—	—	—
Total	**0·9**	**0·8**	**0·4**	**0·4**	**0·3**
Females under 15	0·2	0·1	—	0·1	0·1
„ over 15		0·5	0·2	0·3	0·8
Total	**0·2**	**0·6**	**0·2**	**0·4**	**0·9**
Total of Paper, &c.....	**1·1**	**1·4**	**0·6**	**0·8**	**1·2**
Textiles and Dyeing—*					
Males under 15	5·5	11·9	6·7	6·5	3·4
„ 15—20	117·3	89·9	13·0	10·6	7·4
„ 20—25			11·9	7·3	5·3
„ 25—65			41·2	30·9	23·7
„ over 65			5·0	4·6	3·3
Total	**122·8**	**101·8**	**77·8**	**59·9**	**43·1**
Females under 15	573·2	49·4	17·7	13·3	6·4
„ over 15		272·5	179·6	144·4	80·5
Total	**573·2**	**321·9**	**197·3**	**157·7**	**86·9**
Total of Textiles, &c.....	**696·0**	**423·7**	**275·1**	**217·6**	**130·0**
Manufacture—Carried forward.....	772·9	492·0	340·5	278·1	184·3

* "Textiles."—The great reduction between 1841 and 1851 in the number of females employed in the textile industries is due to the loss of spinning, transferred to machine from hand labour.

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	772·9	492·0	340·5	278·1	184·3
Dress—					
Males under 15	2·6	2·6	2·6	1·9	0·8
,, 15—20	88·2	66·2	11·2	6·8	5·1
,, 20—25			10·3	6·6	5·5
,, 25—65			37·9	33·2	27·2
,, over 65			3·3	3·4	3·4
Total	**90·8**	**68·8**	**65·3**	**51·9**	**42·0**
Females under 15	106·6	5·9	8·4	7·4	3·8
,, over 15		96·1	123·1	132·3	113·8
Total	**106·6**	**102·0**	**131·5**	**139·7**	**117·6**
Total of Dress.....	**197·4**	**170·8**	**196·8**	**191·6**	**159·6**
Food, Drink, and Smoking—					
Males under 15	0·2	0·3	0·4	0·4	0·2
,, 15—20	12·5	16·4	2·4	2·4	2·2
,, 20—25			3·1	2·4	2·7
,, 25—65			10·2	9·7	10·0
,, over 65			0·6	0·7	0·6
Total	**12·7**	**16·7**	**16·7**	**15·6**	**15·7**
Females under 15	1·3	—	—	—	—
,, over 15		1·3	1·6	1·7	1·8
Total	**1·3**	**1·3**	**1·6**	**1·7**	**1·8**
Total of Food, &c.....	**14·0**	**18·0**	**18·3**	**17·3**	**17·5**
Watches, Instruments, and Toys—					
Males under 15	—	—	—	—	—
,, 15—20	1·1	1·1	0·2	0·2	0·1
,, 20—25			0·1	0·1	0·2
,, 25—65			0·9	1·0	1·0
,, over 65			0·1	0·1	0·1
Total	**1·1**	**1·1**	**1·3**	**1·4**	**1·4**
Females under 15	—	—	—	—	—
,, over 15	—	—	0·1	0·1	—
Total	—	—	**0·1**	**0·1**	—
Total of Watches, &c.....	**1·1**	**1·1**	**1·4**	**1·5**	**1·4**
Manufacture—Carried forward.....	985·4	681·9	557·0	488·5	362·8

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Manufacture—Brought forward.....	985·4	681·9	557·0	488·5	362·8
Printing and Bookbinding—					
Males under 15	0·1	0·1	0·3	0·5	0·2
„ 15—20	2·1	2·8	1·0	1·2	1·4
„ 20—25			0·7	0·8	0·9
„ 25—65			1·5	1·8	2·2
„ over 65			—	—	0·1
Total	2·2	2·9	3·5	4·3	4·8
Females under 15	0·2	—	0·1	0·1	0·1
„ over 15		0·4	0·6	0·8	0·9
Total	0·2	0·4	0·7	0·9	1·0
Total of Printing, &c.....	2·4	3·3	4·2	5·2	5·8
Unspecified—*					
Males under 15	0·4	0·3	0·3	0·4	0·4
„ 15—20	0·5	1·3	1·5	1·4	1·5
„ 20—25			0·7	0·6	0·9
„ 25—65			1·9	1·8	3·0
„ over 65			0·1	0·1	0·2
Total	0·9	1·6	4·5	4·3	6·0
Females under 15	0·1	0·1	0·1	0·1	0·2
„ over 15		—	0·2	1·8	4·1
Total	0·1	0·1	0·3	1·9	4·3
Total of Unspecified.....	1·0	1·7	4·8	6·2	10·3
„ Manufacture	988·8	686·9	566·0	499·9	378·9
F. *Transport.*					
Navigation and Docks—†					
Males under 15	0·2	0·9	1·7	2·4	1·7
„ 15—20	9·3	24·9	4·5	4·8	4·1
„ 20—25			4·3	4·1	3·6
„ 25—65			14·8	17·3	15·3
„ over 65			0·8	1·0	1·2
Total	9·5	25·8	26·1	29·6	25·9
Females under 15	0·1	—	—	0·2	0·1
„ over 15		0·2	0·2	0·7	0·3
Total	0·1	0·2	0·2	0·9	0·4
Total of Navigation, &c	9·6	26·0	26·3	30·5	26·3
Transport—Carried forward.....	9·6	26·0	26·3	30·5	26·3

* "Unspecified" in Manufacture contains, in addition to engineers and firemen, mechanics, machine minders, and workers who did not specify with what branch of manufacture they were connected.

† "Navigation" includes only seamen who were in port.

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.		1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*						
Transport—Brought forward.....		9·6	26·0	26·3	30·5	26·3
Railways—						
	Males under 15	—	—	0·2	0·1	0·1
	„ 15—20	—	3·6	0·7	0·6	0·7
	„ 20—25			1·3	1·0	1·5
	„ 25—65			3·2	4·6	5·8
	„ over 65			0·1	0·1	0·2
	Total	—	3·6	5·5	6·4	8·3
	Females under 15	—	—	—	—	—
	„ over 15	—	—	—	—	—
	Total	—	—	—	—	—
	Total of Railways.....	—	3·6	5·5	6·4	8·3
Roads—						
	Males under 15	0·1	0·1	0 3	0·3	0·1
	„ 15—20	9·8	12·9	1·8	1·5	1·2
	„ 20—25			2·6	2·0	2·1
	„ 25—65			11·7	12·2	10·0
	„ over 65			0·4	0·8	0·6
	Total	9·9	13·0	16·8	16·8	14·0
	Females under 15	—	—	—	—	—
	„ over 15	—	0·1	0·1	0·1	0·1
	Total	—	0·1	0·1	0·1	0·1
	Total of Roads.....	9·9	13·1	16·9	16·9	14·1
	„ Transport	19·5	42·7	48·7	53·8	48·7
G. *Dealing.*						
Raw Materials—						
	Males under 15	—	0·1	—	—	—
	„ 15—20	1·5	3·6	0·1	0·2	0·3
	„ 20—25			0·3	0·3	0·6
	„ 25—65			2·0	2·6	3·1
	„ over 65			0·1	0·3	0·2
	Total	1·5	3·7	2·5	3·4	4·2
	Females under 15	—	—	—	—	—
	„ over 15	—	0·5	0·1	0·2	0·2
	Total	—	0·5	0·1	0·2	0 2
	Total of Raw Materials.....	1·5	4·2	2·6	3·6	4·4
Dealing—Carried forward.....		1·5	4·2	2·6	3·6	4·4

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Dealing—Brought forward.....	1·5	4·2	2·6	3·6	4·4
Clothing Materials and Dress—					
Males under 15	—	0·1	0·1	0·2	0·2
„ 15—20	3·7	4·3	1·5	2·4	1·8
„ 20—25			1·6	1·8	1·7
„ 25—65			3·0	3·6	4·2
„ over 65			0·2	0·1	0·2
Total	3·7	4·4	6·4	8·1	8·1
Females under 15	1·3	0·1	—	—	—
„ over 15		1·6	2·1	2·6	3·4
Total	1·3	1·7	2·1	2·6	3·4
Total of Clothing Materials, &c....	5·0	6·1	8·5	10·7	11·5
Food, Drink, and Smoking—					
Males under 15	0·2	0·3	0·3	0·7	0·5
„ 15—20	23·9	24·8	2·9	4·0	4·6
„ 20—25			2·7	3·8	4·8
„ 25—65			19·0	20·7	21·8
„ over 65			1·8	2·1	2·3
Total	24·1	25·1	26·7	31·3	34·0
Females under 15	8·2	0·2	—	0·1	—
„ over 15		16·6	13·3	14·6	14·3
Total	8·2	16·8	13·3	14·7	14·3
Total of Food, &c.....	32·3	41·9	40·0	46·0	48·3
Lodging and Coffee Houses—					
Males under 15	—	—	—	—	—
„ 15—20	0·3	0·4	—	—	—
„ 20—25			—	—	—
„ 25—65			0·3	0·3	0·2
„ over 65			0·1	0·1	0·1
Total	0·3	0·4	0·4	0·4	0·3
Females under 15	1·1	—	—	—	—
„ over 15		1·6	1·6	2·4	1·9
Total	1·1	1·6	1·6	2·4	1·9
Total of Lodging Houses, &c.....	1·4	2·0	2·0	2·8	2·2
Dealing—Carried forward.....	40·2	54·2	53·1	63·1	66·4

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Dealing—Brought forward.....	40·2	54·2	53·1	63·1	66·4
Furniture, Utensils, and Stationery—					
Males under 15	—	—	0·1	0·2	0·2
„ 15—20	1·8	2·8	0·7	0·8	0·8
„ 20—25			0·4	0·6	0·7
„ 25—65			2·1	2·2	2·5
„ over 65			—	0·1	0·1
Total	1·8	2·8	3·3	3·9	4·3
Females under 15	0·3	—	—	—	—
„ over 15		0·9	0·8	1·1	1·6
Total	0·3	0·9	0·8	1·1	1·6
Total of Furniture, &c.....	2·1	3·7	4·1	5·0	5·9
General Dealers and Unspecified—					
Males under 15	0·4	0·9	0·9	0·4	0·3
„ 15—20	27·5	27·0	4·5	2·9	2·1
„ 20—25			4·2	2·8	2·4
„ 25—65			18·9	16·7	14·0
„ over 65			1·5	2·2	1·9
Total	27·9	27·9	30·0	25·0	20·7
Females under 15	21·1	0·5	0·3	0·2	0·1
„ over 15		22·3	26·3	23·2	17·7
Total	21·1	22·8	26·6	23·4	17·8
Total of General Dealers....	49·0	50·7	56·6	48·4	38·5
„ Dealing	91·3	108·6	113·8	116·5	110·8
H. *Industrial Service.*					
Commercial—					
Males under 15	0·1	0·2	0·3	0·3	0·2
„ 15—20	11·8	11·7	2·7	3·0	2·7
„ 20—25			2·9	3·2	3·6
„ 25—65			7·8	7·4	8·8
„ over 65			0·4	0·5	0·6
Total	11·9	11·9	14·1	14·4	15·9
Females under 15	0·1	—	—	—	—
„ over 15		—	0·2	0·4	0·3
Total	0·1	—	0·2	0·4	0·3
Total of Commercial.....	12·0	11·9	14·3	14·8	16·2
Industrial Service—Carried forward...	12 0	11·9	14·3	14·8	16·2

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Industry—*Contd.*					
Industrial Service—Brought forward...	12·0	11·9	14·3	14·8	16·2
General Labour—					
Males under 15	0·4	2·6	10·5	7·9	4·0
„ 15—20	29·1	54·4	33·3	20·2	19·1
„ 20—25			31·6	16·5	19·4
„ 25—65			87·9	97·5	78·8
„ over 65			8·5	14·7	12·7
Total	**29·5**	**57·0**	**171·8**	**156·8**	**134·0**
Females under 15	1·8	0·3	1·4	1·8	0·5
„ over 15		1·5	16·3	19·2	9·3
Total	**1·8**	**1·8**	**17·7**	**21·0**	**9·8**
Total of General Labour.....	**31·3**	**58·8**	**189·5**	**177·8**	**143·8**
„ Industrial Service....	**43·3**	**70·7**	**203·8**	**192·6**	**160·0**
Industry—Total.....	3077·6	2449·1	2188·5	1985·0	1759·4
Public Service and Professional.					
Administration—					
Males under 15	—	—	—	0·2	0·1
„ 15—20	5·5	5·2	0·4	0·7	0·9
„ 20—25			0·7	0·9	1·4
„ 25—65			3·5	4·6	6·3
„ over 65			0·3	0·6	1·0
Total	**5·5**	**5·2**	**4·9**	**7·0**	**9·7**
Females under 15	0·2	—	—	—	—
„ over 15		0·2	0·3	0·8	1·2
Total	**0·2**	**0·2**	**0·3**	**0·8**	**1·2**
Total of Administration....	**5·7**	**5·4**	**5·2**	**7·8**	**10·9**
Army and Navy—*					
Males under 15	—	—	0·2	0·1	—
„ 15—20	—	1·5	5·4	4·8	4·1
„ 20—25			11·7	8·1	12·0
„ 25—65			18·4	21·9	22·2
„ over 65			2·1	1·8	1·6
Total	**—**	**1·5**	**37·8**	**36·7**	**39·9**
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Army and Navy....	**—**	**1·5**	**37·8**	**36·7**	**39·9**

* The Army and Navy stationed in Ireland are excluded from the returns of population in 1841 and 1851. The small number appearing under this head in 1851 are coastguards.

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Public Service, &c.—*Contd.*					
Police and Prisons—					
Males under 15	—	—	—	—	—
„ 15—20	10·4	15·0	0·5	0·6	0·6
„ 20—25			3·7	3·8	3·9
„ 25—65			10·2	11·0	12·2
„ over 65			0·1	0·3	0·7
Total	10·4	15·0	14·5	15·7	17·4
Females under 15	0·1	—	—	—	—
„ over 15		0·1	0·1	0·1	0·2
Total	0·1	0·1	0·1	0·1	0·2
Total of Police and Prisons	10·5	15·1	14·6	15·8	17·6
Law—					
Males under 15	—	—	0·1	0·1	—
„ 15—20	5·2	7·5	0·3	0·4	0·6
„ 20—25			0·6	0·6	0·8
„ 25—65			4·3	3·6	3·0
„ over 65			0·2	0·5	0·5
Total	5·2	7·5	5·5	5·2	4·9
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Law	5·2	7·5	5·5	5·2	4·9
Medicine—					
Males under 15	—	—	—	—	—
„ 15—20	4·1	3·7	0·7	0·6	0·9
„ 20—25			0·8	1·1	1·3
„ 25—65			2·7	2·7	3·0
„ over 65			0·2	0·3	0·4
Total	4·1	3·7	4·4	4·7	5·6
Females under 15	2·8	—	—	—	—
„ over 15		3·4	1·9	2·0	1·9
Total	2·8	3·4	1·9	2·0	1·9
Total of Medicine	6·9	7·1	6·3	6·7	7·5

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Public Service, &c.—*Contd.*					
Art and Amusement—					
Males under 15	—	—	—	—	—
„ 15—20	3·3	2·7	0·2	0·3	0·4
„ 20—25			0·5	0·3	0·4
„ 25—65			2·0	1·6	1·6
„ over 65			0·1	0·2	0·1
Total	**3·3**	**2·7**	**2·8**	**2·4**	**2·5**
Females under 15	0·2	—	—	—	—
„ over 15		0·3	0·4	0·5	0·4
Total	**0·2**	**0·3**	**0·4**	**0·5**	**0·4**
Total of Art, &c.	**3·5**	**3·0**	**3·2**	**2·9**	**2·9**
Literature and Science—					
Males under 15	—	—	—	—	—
„ 15—20	—	0·2	—	—	—
„ 20—25			0·1	0·1	0·1
„ 25—65			0·2	0·3	0·4
„ over 65			—	—	—
Total	—	**0·2**	**0·3**	**0·4**	**0·5**
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Literature, &c.	—	**0·2**	**0·3**	**0·4**	**0·5**
Education—					
Males under 15	—	—	0·1	0·2	0·2
„ 15—20	11·4	10·2	1·4	1·2	1·1
„ 20—25			1·7	1·6	1·5
„ 25—65			6·4	5·7	5·4
„ over 65			0·6	0·6	0·5
Total	**11·4**	**10·2**	**10·2**	**9·3**	**8·7**
Females under 15	5·4	—	0·2	0·2	0·2
„ over 15		7·0	8·9	11·3	13·0
Total	**5·4**	**7·0**	**9·1**	**11·5**	**13·2**
Total of Education	**16·8**	**17·2**	**19·3**	**20·8**	**21·9**

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.
[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Public Service, &c.—*Contd.*					
Religion—					
Males under 15	—	—	—	—	—
„ 15—20	5·9	7·1	0·1	0·4	0·2
„ 20—25			0·5	0·8	1·0
„ 25—65			6·4	6·3	6·4
„ over 65			0·7	1·1	1·1
Total	**5·9**	**7·1**	**7·7**	**8·6**	**8·7**
Females under 15	1·2	—	—	—	—
„ over 15		1·8	2·9	4·2	5·6
Total	**1·2**	**1·8**	**2·9**	**4·2**	**5·6**
Total of Religion	**7·1**	**8·9**	**10·6**	**12·8**	**14·3**
Total of Public Service, &c.	**55·7**	**65·9**	**102·8**	**109·1**	**120·4**
Domestic Service.					
In-door—					
Males under 15	8·8	3·2	4·5	2·5	1·8
„ 15—20	59·9	27·6	10·9	4·4	5·0
„ 20—25			8·6	3·2	3·9
„ 25—65			15·3	8·9	10·1
„ over 65			1·0	0·9	1·2
Total	**68·7**	**30·8**	**40·3**	**19·9**	**22·0**
Females under 15	260·6	16·7	17·8	20·7	12·9
„ over 15		214·6	283·6	321·0	360·3
Total	**260·6**	**231·3**	**301·4**	**341·7**	**373·2**
Total of In-door Servants	**329·3**	**262·1**	**341·7**	**361·6**	**395·2**
Out-door—					
Males under 15	1·1	1·2	—	0·1	0·1
„ 15—20			0·1	1·0	1·2
„ 20—25			0·2	1·5	2·1
„ 25—65			1·3	6·1	8·6
„ over 65			0·1	0·3	0·7
Total	**1·1**	**1·2**	**1·7**	**9·0**	**12·7**
Females under 15	0·2	—	—	—	—
„ over 15		0·5	0·4	0·4	0·3
Total	**0·2**	**0·5**	**0·4**	**0·4**	**0·3**
Total of Out-door Servants	**1·3**	**1·7**	**2·1**	**9·4***	**13·0***
Domestic Service—Carried forward	330·6	263·8	343·8	371·0	408·2

* The large increase in the number of out-door servants in 1871 and 1881, is partly due to confusion in the census returns. Market gardeners (Agriculture) are not clearly distinguished from domestic gardeners, nor public coachmen (Transport) from those in Domestic Service.

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Domestic Service—*Contd.*					
Domestic Service—Brought forward...	330·6	263·8	343·8	371·0	408·2
Extra—					
Males under 15	0·2	0·2	0·1	—	—
„ 15—20	1·1	1·4	0·4	0·2	0·3
„ 20—25			0·2	0·3	0·2
„ 25—65			0·9	0·9	1·0
„ over 65			—	0·1	—
Total	1·3	1·6	1·6	1·5	1·5
Females under 15	10·0	0·4	0·2	0·1	0·1
„ over 15		16·9	19·2	16·6	17·4
Total	10·0	17·3	19·4	16·7	17·5
Total of Extra Service.....	11·3	18·9	21·0	18·2	19·0
Total of Domestic Service...	341·9	282·7	364·8	389·2	427·2
Property Owning and Indefinite.					
Property Owners—*					
Males under 15	—	—	—	—	—
„ 15—20	11·5	11·5	0·3	0·2	—
„ 20—25			0·4	0·5	0·7
„ 25—65			8·5	6·4	6·7
„ over 65			2·4	2·2	2·7
Total	11·5	11·5	11·6	9·3	10·1
Females under 15	14·5	—	0·1	—	—
„ over 15		14·5	14·6	16·0	18·9
Total	14·5	14·5	14·7	16·0	18·9
Total of Property Owners....	26·0	26·0	26·3	25·3	29·0
Indefinite—					
Males under 15	—	—	—	—	—
„ 15—20	122·3	191·3	—	—	—
„ 20—25			12·8	10·1	10·6
„ 25—65			26·3	34·4	22·3
„ over 65			12·4	14·3	5·8
Total	122·3	191·3	51·5	58·8	38·7
Females under 15	—	—	—	—	—
„ over 15	—	—	—	—	—
Total	—	—	—	—	—
Total of Indefinite.....	122·3	191·3	51·5	58·8	38·7
Total of Property Owning, &c...	148·3	217·3	77·8	84·1	67·7

* "Property owners" only include those who so returned themselves. In 1841, 1851, and 1881 they were not separately returned at all, and the figures for these years are estimates based on the numbers in the other censuses, adopted for the sake of uniformity. No statistical value attaches to these figures in any case.

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Estimated Numbers dependent on each Class of Workers.*					
Agriculture—					
Males under 15	1064·9	665·6	525·8	493·8	499·1
„ 15—20	—	—	36·6	21·4	26·0
Total	**1064·9**	**665·6**	**562·4**	**515·2**	**525·1**
Females under 15	2165·2	680·0	536·1	503·8	490·7
„ over 15		844·6	748·7	569·5	559·8
Total	**2165·2**	**1524·6**	**1284·8**	**1073·3**	**1050·5**
Total of Dependents on Agriculture	**3230·1**	**2190·2**	**1847·2**	**1588·5**	**1575·6**
Fishing—					
Males under 15	6·3	6·0	4·3	5·4	6·0
„ 15—20	—	—	0·4	0·3	0·2
Total	**6·3**	**6·0**	**4·7**	**5·7**	**6·2**
Females under 15	12·8	5·7	4·3	5·4	6·1
„ over 15		8·5	6·6	7·0	7·9
Total	**12·8**	**14·2**	**10·9**	**12·4**	**14·0**
Total of Dependents on Fishing	**19·1**	**20·2**	**15·6**	**18·1**	**20·2**
Mining—					
Males under 15	6·1	6·5	5·4	4·8	4·5
„ 15—20	—	—	0·4	0·1	0·3
Total	**6·1**	**6·5**	**5·8**	**4·9**	**4·8**
Females under 15	12·2	6·2	5·2	5·0	4·5
„ over 15		8·7	8·0	6·1	6·0
Total	**12·2**	**14·9**	**13·2**	**11·1**	**10·5**
Total of Dependents on Mining	**18·3**	**21·4**	**19·0**	**16·0**	**15·3**
Building—					
Males under 15	52·4	33·9	35·7	34·7	35·5
„ 15—20	—	—	2·9	2·3	4·2
Total	**52·4**	**33·9**	**38·6**	**37·0**	**39·7**
Females under 15	104·2	32·2	34·5	33·7	34·4
„ over 15		47·0	53·5	43·6	45·5
Total	**104·2**	**79·2**	**88·0**	**77·3**	**79·9**
Total of Dependents on Building	**156·6**	**113·1**	**126·6**	**114·3**	**119·6**

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Contd.*					
Manufacture—					
Males under 15	206·2	129·3	103·8	96·8	92·2
„ 15—20	—	—	—	—	3·9
Total	206·2	129·3	103·8	96·8	96·1
Females under 15	302·4	98·6	83·5	82·2	83·0
„ over 15		144·1	125 3	97·8	82·3
Total	302·4	242·7	208·8	180·0	165·3
Total of Dependents on Manufacture	508·6	372·0	312·6	276·8	261·4
Transport—					
Males under 15	13·3	24·0	24·0	29·5	28·7
„ 15—20	—	—	1·3	1·5	2·9
Total	13·3	24·0	25·3	31·0	31·6
Females under 15	27·6	23·3	24·7	30·4	29·1
„ over 15		32·5	38·1	38·8	38·2
Total	27·6	55·8	62·8	69·2	67·3
Total of Dependents on Transport	40·9	79·8	88·1	100·2	98·9
Dealing—					
Males under 15	42·4	36·6	38·5	42·2	43·8
„ 15—20	—	—	3·0	1·2	3·6
Total	42·4	36·6	41·5	43·4	47·4
Females under 15	61·3	35·3	37·5	41·1	42·9
„ over 15		33·1	34·5	35·6	32·6
Total	61·3	68·4	72·0	76·7	75·5
Total of Dependents on Dealing	103·7	105·0	113·5	120·1	122·9
Industrial Service—					
Males under 15	29·4	37·2	73·4	91·2	82·0
„ 15—20	—	—	—	2·7	3·4
Total	29·4	37·2	73·4	93·9	85·4
Females under 15	57·4	37·9	78·7	92·4	81·9
„ over 15		51·7	107·4	102·4	99·5
Total	57·4	89·6	186·1	194·8	181·4
Total Dependents on Industrial Service	86·8	126·8	259·5	288·7	266·8

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Contd.*					
Public Service and Professional—					
Males under 15	33·5	32·3	47·6	54·1	58·9
„ 15—20	—	—	6·6	4·3	8·4
Total	**33·5**	**32·3**	**54·2**	**58·4**	**67·3**
Females under 15	59·1	31·2	45·6	51·9	56·5
„ over 15		38·2	63·3	59·1	65·0
Total	**59·1**	**69·4**	**108·9**	**111·0**	**121·5**
Total of Dependents on Public Service	**92·6**	**101·7**	**163·1**	**169·4**	**188·8**
Domestic Service—					
Males under 15	1·4	1·3	1·9	6·5	9·3
„ 15—20	—	—	0·2	0·5	1·3
Total	**1·4**	**1·3**	**2·1**	**7·0**	**10·6**
Females under 15	2·3	1·3	1·6	6·0	8·9
„ over 15		1·1	2·0	7·4	11·1
Total	**2·3**	**2·4**	**3·6**	**13·4**	**20·0**
Total of Dependents on Domestic Service	**3·7**	**3·7**	**5·7**	**20·4**	**30·6**
Property Owning—					
Males under 15	8·4	7·0	7·6	6·1	6·5
„ 15—20	—	—	2·0	1·4	1·9
Total	**8·4**	**7·0**	**9·6**	**7·5**	**8·4**
Females under 15	16·3	6·4	6·9	5·7	6·2
„ over 15		9·3	11·2	7·2	8·2
Total	**16·3**	**15·7**	**18·1**	**12·9**	**14·4**
Total of Dependents on Property Owning	**24·7**	**22·7**	**27·7**	**20·4**	**22·8**

APPENDIX A (3)—*Contd.* IRELAND.—*Occupations of the People*, 1841-81.

[In thousands and decimals of a thousand.]

Occupations.	1841.	1851.	1861.	1871.	1881.
Non-Workers—*Contd.*					
Indefinite—					
Males under 15	89·5	115·6	23·3	32·6	21·9
„ 15—20	—	—	7·3	8·6	6·5
Total	**89·5**	**115·6**	**30·6**	**41·2**	**28·4**
Females under 15	177·0	108·6	21·8	30·9	21·0
„ over 15		156·6	34·0	39·9	27·8
Total	**177·0**	**265·2**	**55·8**	**70·8**	**48·8**
Total of Dependents on Indefinite	**266·5**	**380·8**	**86·4**	**112·0**	**77·2**
Whole Population.					
Employed or Independent—					
Males under 15	123·9	98·3	76·5	75·5	33·3
„ 15—20	2341·9	1997·1	269·0	214·7	211·8
„ 20—25			298·3	214·5	232·2
„ 25—65			1111·8	1033·5	945·4
„ over 65			129·8	159·5	159·6
Total	**2465·8**	**2095·4**	**1885·4**	**1697·7**	**1582·3**
Females under 15	1157·7	87·5	53·7	53·5	27·1
„ over 15		832·1	794·8	816·2	765·3
Total	**1157·7**	**919·6**	**848·5**	**869·7**	**792·4**
Total Employed, &c.	**3623·5**	**3015·0**	**2733·9**	**2567·4**	**2374·7**
Dependent—					
Males under 15	1553·8	1095·3	891·3	897·7	888·4
„ 15—20	—	—	60·7	44·3	62·6
Total	**1553·8**	**1095·3**	**952·0**	**942·0**	**951·0**
Females under 15	2997·8	1066·7	880·4	888·5	865·2
„ over 15		1375·4	1232·6	1014·4	983·9
Total	**2997·8**	**2442·1**	**2113·0**	**1902·9**	**1849·1**
Total Dependent	**4551·6**	**3537·4**	**3065·0**	**2844·9**	**2800·1**
Total of Population	8175·1	6552·4	5798·9	5412·3	5174·8

APPENDIX B (1).—ENGLAND AND WALES.

I.—*Numbers and Percentages of the Employed or*

Total Occupied in	1841.				1851.			
	Total.		Percentage.		Total.		Percentage.	
Agriculture	—	1,297	—	19·5	—	1,760	—	20·9
Fishing	—	10	—	0·2	—	17	—	0·2
Mining	—	210	—	3·2	—	335	—	4·0
Building	—	353	—	5·4	—	461	—	5·5
Manufacture—								
Machinery and tools	56		0·8		100		1·2	
Shipbuilding	22		0·4		27		0·3	
Metal workers	188		2·8		293		3·5	
Earthenware, glass, &c.	31		0·5		46		0·5	
Fuel, gas, and chemicals	6		0·1		18		0·2	
Furs, leather, glue, &c.	34		0·5		51		0·6	
Wood, furniture, and carriages	152		2·3		189		2·2	
Paper, floorcloth, and waterproof	12		0·2		22		0·3	
Textiles and dyeing	604		9·1		935		11·1	
Dress	521		7·8		869		10·3	
Food, drink, and smoking	91		1·4		133		1·6	
Watches, instruments, and toys	20		0·3		25		0·3	
Printing and bookbinding	23		0·3		34		0·4	
Unspecified (chiefly connected with machinery)	38		0·6		13		0·2	
	—	1,798	—	27·1	—	2,755	—	32·7
Transport—								
Navigation and docks	102		1·5		246		2·9	
Railways	2		—		25		0·3	
Roads	45		0·7		74		0·9	
	—	149	—	2·2	—	345	—	4·1
Dealing	—	351	—	5·3	—	547	—	6·5
Industrial Service—								
Commercial	41		0·6		45		0·5	
General labour	319		4·8		332		4·0	
	—	360	—	5·4	—	377	—	4·5
Total of Industry	—	4,528		68·3		6,597		78·4
Administration	21		0·3		52		0·6	
Army and Navy	47		0·7		86		1·0	
Police and Prisons	13		0·2		16		0·2	
Law	29		0·5		32		0·4	
Medicine	42		0·6		60		0·7	
Art and Amusement	15		0·2		25		0·3	
Literature and Science	1		—		2		—	
Education	52		0·8		95		1·0	
Religion	20		0·3		31		0·4	
Total of Public and Professional Service	—	240	—	3·6	—	399	—	4·6
Domestic Service	—	1,078	—	16·2	—	1,121	—	13·3
Property Owning and Independent	—	448	—	6·8	—	211	—	2·5
Indefinite	—	337	—	5·1	—	101	—	1·2
Total Self-supporting	—	6,631	41·7	100·0	—	8,429	47·0	100·0
,, Dependents	—	9,281	58·3	—	—	9,499	53·0	—
,, of Population	—	15,912	100·0	—	—	17,928	100·0	—

APPENDIX B (1).—England and Wales.

Self-supporting Population (in Thousands).

1861.				1871.				1881.			
Total.		Percentage.		Total.		Percentage.		Total.		Percentage.	
—	1,700	—	18·0	—	1,504	—	14·2	—	1,341	—	11·5
—	17	—	0·2	—	21	—	0·2	—	30	—	0·3
—	425	—	4·5	—	475	—	4·5	—	562	—	4·8
—	549	—	5·8	—	664	—	6·3	—	796	—	6·8
159		1·7		194		1·8		224		1·9	
44		0·4		45		0·4		54		0·5	
375		4·0		436		4·1		477		4·1	
56		0·6		67		0·6		72		0·6	
26		0·3		38		0·4		48		0·4	
56		0·6		59		0·5		63		0·5	
216		2·3		234		2·2		240		2·1	
25		0·3		33		0·3		48		0·4	
966		10·2		970		9·3		962		8·2	
930		9·8		916		8·5		954		8·1	
149		1·6		165		1·6		182		1·6	
36		0·4		39		0·4		45		0·3	
47		0·5		66		0·6		88		0·8	
32		0·3		96		0·9		142		1·2	
—	3,117	—	33·0	—	3,358	—	31·6	—	3,599	—	30·7
278		3·0		314		2·9		347		2·9	
53		0·5		85		0·8		139		1·2	
105		1·1		125		1·2		168		1·5	
—	436	—	4·6	—	524	—	4·9	—	654	—	5·6
—	674	—	7·1	—	838	—	7·8	—	924	—	7·8
68		0·7		119		1·1		225		1·9	
310		3·3		517		4·9		560		4·8	
—	378	—	4·0	—	636	—	6·0	—	785	—	6·7
	7,296		77·2		8,020		75·5		8,691		74·2
64		0·7		73		0·7		82		0·7	
132		1·4		137		1·3		124		1·1	
25		0·2		32		0·3		36		0·3	
34		0·4		39		0·4		44		0·3	
63		0·7		73		0·8		84		0·7	
29		0·3		38		0·3		47		0·4	
3		—		7		—		9		0·1	
116		1·2		135		1·3		183		1·6	
39		0·4		44		0·4		51		0·4	
—	505	—	5·3	—	578	—	5·5	—	660	—	5·6
—	1,384	—	14·6	—	1,684	—	15·8	—	1,838	—	15·7
—	186	—	2·0	—	218	—	2·0	—	255	—	2·2
—	82	—	0·9	—	124	—	1·2	—	269	—	2·3
—	9,453	47·1	100·0	—	10,624	46·8	100·0	—	11,713	45·1	100·0
—	10,613	52·9	—	—	12,088	53·2	—	—	14,261	54·9	
—	20,066	100·0	—	—	22,712	100·0	—	—	25,974	100·0	

II.—*Estimated Numbers and Percentages of the Dependent*

Dependent on Workers in	1841.		1851.	
	Total Numbers.	Percentages of Total.	Total Numbers.	Percentages of Total.
Agriculture	2,578	27·8	2,488	26·2
Fishing	23	0·2	29	0·3
Mining	354	3·8	493	5·2
Building	773	8·3	920	9·7
Manufacture	2,208	23·8	2,508	26·4
Transport	325	3·5	523	5·5
Dealing	622	6·7	838	8·8
Industrial Service	745	8·0	681	7·2
Public and Professional Service	431	4·7	626	6·6
Domestic Service	33	0·4	90	0·9
Property Owning and Independent*	313	3·4	127	1·4
Indefinite*	876	9·4	176	1·8
Total of Dependents	9,281	100·0	9,499	100·0
„ Self-supporting	6,631		8,429	
„ Population	15,912		17,928	

(For basis of estimates in Tables II and III,

III.—*Estimated Total Numbers Supported by each Class of*

Occupations.	1841.		1851.	
	Total.	Percentages.	Total.	Percentages.
Agriculture	3,875	24·3	4,247	23·7
Fishing	33	0·2	46	0·2
Mining	564	3·5	828	4·6
Building	1,126	7·1	1,381	7·7
Manufacture	4,006	25·2	5,263	29·4
Transport	474	3·0	868	4·8
Dealing	973	6·2	1,385	7·7
Industrial Service	1,105	6·9	1,058	5·9
Public and Professional Service	671	4·2	1,026	5·7
Domestic Service	1,111	7·0	1,211	6·8
Property Owning and Independent*	761	4·8	338	1·9
Indefinite*	1,213	7·6	277	1·6
Total of Population	15,912	100·0	17,928	100·0

* These classes seem to be exaggerated in 1841, and it is probable that, in later censuses, occupations were found for many of them.

Population connected with each Section (in Thousands).

1861.		1871.		1881.	
Total Numbers.	Percentages of Total.	Total Numbers.	Percentages of Total.	Total Numbers.	Percentages of Total.
2,493	23·5	2,242	18·5	2,094	14·7
30	0·3	36	0·3	50	0·4
640	6·0	756	6·3	991	7·0
1,084	10·2	1,320	10·8	1,668	11·7
2,820	26·6	3,195	26·5	3,713	26·0
740	7·0	882	7·3	1,145	8·1
1,008	9·5	1,216	10·0	1,410	9·9
683	6·4	1,117	9·3	1,439	10·1
724	6·8	833	6·9	860	6·0
139	1·3	175	1·4	392†	2·7
115	1·1	98	0·8	114	0·8
137	1·3	218	1·8	385	2·6
10,613	100·0	12,088	100·0	14,261	100·0
9,453		10,624		11,713	
20,066		22,712		25,974	

see explanatory remarks, p. 349).

Occupations, and Percentages of the Whole Population (in Thousands).

1861.		1871.		1881.	
Total.	Percentages.	Total.	Percentages.	Total.	Percentages.
4,194	20·9	3,746	16·5	3,435	13·2
47	0·2	57	0·2	80	0·3
1,065	5·3	1,231	5·4	1,553	6·0
1,633	8·2	1,984	8·8	2,464	9·5
5,940	29·6	6,553	28·9	7,313	28·2
1,177	5·8	1,406	6·2	1,799	6·9
1,684	8·4	2,054	9·0	2,334	9·0
1,060	5·3	1,753	7·7	2,224	8·5
1,223	6·1	1,411	6·2	1,519	5·9
1,523	7·6	1,859	8·2	2,230	8·6
301	1·5	316	1·4	369	1·4
219	1·1	342	1·5	654	2·5
20,066	100·0	22,712	100·0	25,974	100·0

† The increase in Domestic Service (dependents) is due to the large increase in the coachmen (private servants), whose families are here represented.

APPENDIX B (2).—SCOTLAND.

I.—*Numbers and Percentages of the Employed or*

Total Occupied in	1841.				1851.			
	Total.		Percentage.		Total.		Percentage.	
Agriculture, &c.	—	260	—	23·4	—	299	—	22·7
Fishing	—	13	—	1·2	—	20	—	1·5
Mining	—	26	—	2·4	—	52	—	4·0
Building	—	60	—	5·4	—	69	—	5·2
Manufacture—								
Machinery and tools	6		0·5		12		0·9	
Shipbuilding	4		0·3		5		0·4	
Metal workers	25		2·3		39		3·0	
Earthenware, &c.	2		0·2		3		0·2	
Fuel, gas, and chemicals	1		0·1		3		0·2	
Furs, leather, glue, &c.	4		0·3		5		0·4	
Wood, furniture, and carriages	19		1·7		22		1·7	
Paper, floorcloth, and waterproof	2		0·2		5		0·4	
Textiles and dyeing	181		16·3		247		18·8	
Dress	76		6·9		110		8·4	
Food, drink, and smoking	14		1·3		20		1·5	
Watches, instrumen's, and toys	2		0·2		2		0·1	
Printing and bookbinding	4		0·4		5		0·4	
Unspecified (chiefly connected with machinery)	10		0·9		2		0·1	
	—	350	—	31·6	—	480	—	36·5
Transport—								
Navigation and docks	15		1·4		28		2·1	
Railways	—		—		3		0·2	
Roads	10		0·9		16		1·3	
	—	25	—	2·3	—	47	—	3·6
Dealing	—	49	—	4·4	—	74	—	5·6
Industrial Service—								
Commercial	7		0·6		8		0·6	
General labour	41		3·7		42		3·2	
	—	48	—	4·3	—	50	—	3·8
Total of Industry	—	831	—	75·0	—	1,091	—	82·9
Administration	4		0·4		6		0·5	
Army and Navy	5		0·5		9		0·7	
Police and Prisons	2		0·2		2		0·1	
Law	6		0·5		5		0·4	
Medicine	6		0·5		7		0·5	
Art and Amusement	2		0·2		3		0·2	
Literature and Science	—		—		—		—	
Education	7		0·6		10		0·8	
Religion	3		0·3		4		0·3	
Total of Public and Professional Service	—	35	—	3·2	—	46	—	3·5
Domestic Service	—	135	—	12·2	—	138	—	10·5
Property Owning and Independent	—	59	—	5·3	—	29	—	2·2
Indefinite	—	48	—	4·3	—	12	—	0·9
Total Self-supporting	—	1,108	42·3	100·0	—	1,316	45·6	100·0
,, Dependents	—	1,512	57·7	—	—	1,572	54·4	—
,, of Population	—	2,620	100·0	—	—	2,888	100·0	—

APPENDIX B (2).—Scotland.

Self-supporting Population (in Thousands).

1861.				1871.				1881.			
Total.		Percentage.		Total.		Percentage.		Total.		Percentage.	
—	276	—	20·1	—	258	—	17·3	—	234	—	14·2
—	23	—	1·7	—	27	—	1·8	—	31	—	1·9
—	62	—	4·5	—	76	—	5·1	—	84	—	5·0
—	82	—	5·9	—	94	—	6·3	—	111	—	6·7
18		1·3		26		1·7		35		2·0	
9		0·7		16		1·0		18		1·1	
47		3·4		60		4·7		72		4·4	
4		0·3		5		0·3		5		0·3	
4		0·3		6		0·4		6		0·4	
5		0·4		6		0·4		6		0·4	
25		1·8		26		1·7		30		1·8	
6		0·4		9		0·6		12		0·8	
215		15·7		212		14·2		191		11·6	
103		7·4		103		6·6		108		6·6	
23		1·7		25		1·6		30		1·8	
3		0·2		3		0·2		4		0·2	
8		0·6		10		0·6		14		0·9	
11		0·8		11		0·7		26		1·5	
—	481	—	35·0	—	518	—	34·7	—	557	—	33·8
32		2·3		40		2·7		41		2·5	
7		0·5		12		0·8		19		1·2	
17		1·3		21		1·4		25		1·5	
—	56	—	4·1	—	73	—	4·9	—	85	—	5·2
—	89	—	6·5	—	106	—	7·1	—	123	—	7·5
11		0·8		19		1·3		34		2·1	
43		3·1		48		3·2		68		4·1	
—	54	—	3·9	—	67	—	4·5	—	102	—	6·2
—	1,123	—	81·7	—	1,219	—	81·7	—	1,327	—	80·5
7		0·5		9		0·6		10		0·6	
10		0·7		8		0·5		8		0·5	
3		0·2		4		0·3		4		0·2	
5		0·4		6		0·4		7		0·5	
7		0·5		7		0·5		10		0·6	
2		0·2		3		0·2		5		0·3	
—		—		—		—		1		—	
13		1·0		13		0·9		19		1·1	
6		0·4		6		0·4		6		0·4	
—	53	—	3·9	—	56	—	3·8	—	70	—	4·2
—	165	—	12·0	—	160	—	10·7	—	183	—	11·1
—	22	—	1·6	—	43	—	2·9	—	54	—	3·3
—	11	—	0·8	—	14	—	0·9	—	14	—	0·9
—	1,374	44·9	100·0	—	1,492	44·4	100·0	—	1,648	44·1	100·0
—	1,688	55·1	—	—	1,868	55·6	—	—	2,088	55·9	—
—	3,062	100·0	—	—	3,360	100·0	—	—	3,736	100·0	—

II.—*Estimated Numbers and Percentages of the*

Dependent on Workers in	1841.		1851.	
	Total Numbers.	Percentages of Total.	Total Numbers.	Percentages of Total.
Agriculture, &c.	409	27·1	389	24·8
Fishing	33	2·2	44	2·8
Mining	48	3·2	90	5·7
Building	140	9·2	156	9·9
Manufacture	377	24·9	445	28·3
Transport	59	3·9	94	6·0
Dealing	80	5·3	106	6·7
Industrial Service	113	7·5	106	6·7
Public and Professional Service	70	4·6	91	5·8
Domestic Service	11	0·7	10	0·7
Property Owning and Independent	33	2·2	18	1·1
Indefinite	139	9·2	23	1·5
Total of Dependents	1,512	100·0	1,572	100·0
,, Self-supporting	1,108	—	1,316	—
,, Population	2,620	—	2,888	—

III.—*Estimated Total Numbers supported by each Class of Occupations,*

Occupations.	1841.		1851.	
	Total.	Percentages.	Total.	Percentages.
Agriculture, &c.	669	25·6	688	23·8
Fishing	47	1·8	63	2·2
Mining	74	2·8	142	5·0
Building	200	7·6	225	7·8
Manufacture	726	27·7	925	32·0
Transport	84	3·2	141	4·9
Dealing	129	4·9	180	6·2
Industrial Service	161	6·2	156	5·4
Public and Professional Service	105	4·0	138	4·8
Domestic Service	146	5·6	147	5·1
Property Owning and Independent	92	3·5	47	1·6
Indefinite	187	7·1	36	1·2
Total of Population	2,620	100·0	2,888	100·0

Dependent Population (in Thousands).

1861.		1871.		1881.	
Total Numbers.	Percentages of Total.	Total Numbers.	Percentages of Total.	Total Numbers.	Percentages of Total.
387	22·9	346	18·5	289	13·8
50	3·0	61	3·3	60	2·9
115	6·8	141	7·5	155	7·4
172	10·2	199	10·7	236	11·3
460	27·2	522	28·0	598	28·6
116	6·9	142	7·6	167	8·0
125	7·4	142	7·6	164	7·9
116	6·9	137	7·3	197	9·5
95	5·6	101	5·4	111	5·3
19	1·1	30	1·6	59	2·8
13	0·8	23	1·2	33	1·6
20	1·2	24	1·3	19	0·9
1,688	100·0	1,868	100·0	2,088	100·0
1,374	—	1,492	—	1,648	—
3,062	—	3,360	—	3,736	—

and Percentages of the whole Population (in Thousands).

1861.		1871.		1881.	
Total.	Percentages.	Total.	Percentages.	Total.	Percentages.
663	21·7	604	18·0	523	14·0
73	2·4	88	2·6	92	2·5
176	5·8	217	6·5	239	6·4
254	8·3	293	8·7	347	9·3
940	30·7	1,040	31·0	1,155	30·9
173	5·6	215	6·4	252	6·7
214	7·0	248	7·4	287	7·7
170	5·5	204	6·1	298	8·0
150	4·9	157	4·6	180	4·8
184	6·0	190	5·6	242	6·5
35	1·1	66	2·0	87	2·3
30	1·0	38	1·1	34	0·9
3,062	100·0	3,360	100·0	3,736	100·0

APPENDIX B (3).—IRELAND.

I.—*Numbers and Percentages of the Employed or*

Total Occupied in	1841.				1851.			
	Total.		Percentage.		Total.		Percentage.	
Agriculture, &c.	—	1,844	—	50·9	—	1,460	—	48·4
Fishing	—	9	—	0·2	—	11	—	0·4
Mining	—	9	—	0·2	—	12	—	0·4
Building	—	72	—	2·0	—	58	—	2·0
Manufacture—								
Machinery and tools	4		0·1		4		0·1	
Shipbuilding	2		—		2		0·1	
Metal workers	37		1·1		30		1·0	
Earthenware, glass, &c.	1		—		1		—	
Fuel, gas, and chemicals	—		—		—		—	
Furs, leather, glue, &c.	6		0·2		7		0·2	
Wood, furniture, and carriages	26		0·7		23		0·8	
Paper, floorcloth, and waterproof	1		—		1		—	
Textiles and dyeing	696		19·3		424		14·1	
Dress	197		5·4		171		5·7	
Food, drink, and smoking	14		0·4		18		0·6	
Watches, instruments, and toys	1		—		1		—	
Printing and bookbinding	3		0·1		3		0·1	
Unspecified (chiefly connected with machinery)	1		—		2		0·1	
	—	989	—	27·3	—	687	—	22·8
Transport—								
Navigation and docks	9		0·2		26		0·9	
Railways	—		—		4		0·1	
Roads	10		0·3		13		0·4	
	—	19	—	0·5	—	43	—	1·4
Dealing	—	91	—	2·6		109		3·6
Industrial Service—								
Commercial	12		0·3		12		0·4	
General labour	31		0·9		59		1·9	
	—	43	—	1·2	—	71	—	2·3
Total of Industry	—	3,076		84·9		2,451		81·3
Administration	6		0·2		5		0·2	
Army and Navy	—		—		2		0·1	
Police and Prisons	11		0·3		15		0·5	
Law	5		0·1		7		0·2	
Medicine	7		0·2		7		0·2	
Art and Amusement	4		0·1		3		0·1	
Literature and Science	—		—		—		—	
Education	17		0·5		17		0·6	
Religion	7		0·2		9		0·3	
Total of Public and Professional Service	—	57	—	1·6	—	65	—	2·2
Domestic Service	—	342	—	9·4	—	283	—	9·4
Property Owning and Independent	—	26	—	0·7	—	26	—	0·8
Indefinite, &c.	—	122	—	3·4	—	191	—	6·3
Total of Occupied	—	3,623	44·3	100·0	—	3,016	46·0	100·0
„ of Dependents	—	4,552	55·7	—	—	3,536	54·0	
„ of Population	—	8,175	100·0	—	—	6,552	100·0	

APPENDIX B (3).—Ireland.

Self-supporting Population (in Thousands).

1861.				1871.				1881.			
Total.		Percentage.		Total.		Percentage.		Total.		Percentage.	
—	1,173	—	42·9	—	1,046	—	40·7	—	986	—	41·1
—	8	—	0·3	—	10	—	0·4	—	11	—	0·5
—	10	—	0·4	—	9	—	0·3	—	8	—	0·4
—	66	—	2·4	—	57	—	2·2	—	56	—	2·4
5		0·2		5		0·2		5		0·2	
2		0·1		2		0·1		3		0·1	
28		1·0		26		1·0		23		1·0	
—		—		1		—		1		—	
1		—		1		—		1		—	
4		0·2		4		0·2		3		0·1	
24		0·8		20		0·8		17		0·8	
1		—		1		—		1		—	
275		10·1		218		8·5		130		5·6	
197		7·2		192		7·5		160		6·7	
19		0·7		17		0·7		18		0·8	
1		—		2		0·1		1		—	
4		0·2		5		0·2		6		0·3	
								10		0·4	
5		0·2		6		0·2					
—	566	—	20·7	—	500	—	19·5	—	379	—	16·0
26		1·0		31		1·2		27		1·2	
6		0·2		6		0·2		8		0·4	
17		0·6		17		0·7		14		0·6	
—	49	—	1·8	—	54	—	2·1	—	49	—	2·2
	114		4·1		117		4·6		111		4·8
14		0·5		15		0·6		16		0·7	
190		7·0		178		6·9		144		6·0	
—	204	—	7·5	—	193	—	7·5	—	160	—	6·7
	2,190		80·1		1,986		77·3		1,760		74·1
5		0·2		8		0·3		11		0·5	
38		1·4		37		1·4		40		1·7	
15		0·5		16		0·7		18		0·8	
5		0·2		5		0·2		5		0·2	
6		0·2		7		0·3		7		0·3	
3		0·1		3		0·1		3		0·1	
—		—		—		—		1		—	
19		0·7		21		0·8		22		1·0	
11		0·4		13		0·5		14		0·6	
—	102	—	3·7	—	110	—	4·3	—	121	—	5·0
—	365	—	13·3	—	389	—	15·2	—	427	—	18·0
—	26	—	1·0	—	25	—	1·0	—	29	—	1·3
—	51	—	1·9	—	58	—	2·2	—	38	—	1·6
—	2,734	47·1	100·0	—	2,568	47·4	100·0	—	2,375	45·9	100·0
—	3,065	52·9	—	—	2,845	52·6	—	—	2,800	54·1	
—	5,799	100·0	—	—	5,413	100·0	—	—	5,175	100·0	

II.—*Estimated Numbers and Percentages of*

Dependent on Workers in	1841.		1851.	
	Numbers.	Percentage.	Numbers.	Percentage.
Agriculture, &c.	3,230	70·9	2,190	62·0
Fishing	19	0·4	20	0·6
Mining	18	0·4	21	0·6
Building	157	3·5	113	3·2
Manufacture	509	11·2	372	10·5
Transport	41	0·9	80	2·3
Dealing	104	2·3	105	3·0
Industrial Service	87	1·9	127	3·5
Public and Professional Service	92	2·0	100	2·8
Domestic Service	4	0·1	4	0·1
Property Owning and Independent	25	0.6	23	0·6
Indefinite, &c.	266	5·8	381	10·8
Total of Dependents	4,552	100·0	3,536	100·0
„ Self-supporting	3,623	—	3,016	—
„ Population	8,175	—	6,552	—

III.—*Estimated Total Numbers Supported by each Class of*

Occupations.	1841.		1851.	
	Numbers.	Percentage.	Numbers.	Percentage.
Agriculture, &c.	5,074	62·1	3,650	55·7
Fishing	28	0·3	31	0·5
Mining	27	0·3	33	0·5
Building	229	2·8	171	2·6
Manufacture	1,498	18·3	1,059	16·2
Transport	60	0·8	122	1·9
Dealing	195	2·4	214	3·3
Industrial Service	130	1·6	197	3·0
Public and Professional Service	148	1·8	168	2·5
Domestic Service	346	4·2	286	4·4
Property Owning and Independent	51	0·6	49	0·7
Indefinite, &c.	389	4·8	572	8·7
Total	8,175	100·0	6,552	100·0

the Dependent Population (in Thousands).

1861.		1871.		1881.	
Numbers.	Percentage.	Numbers.	Percentage.	Numbers.	Percentage.
1,847	60·3	1,589	55·9	1,576	56·3
16	0·5	18	0·6	20	0·7
19	0·6	16	0·6	15	0·5
127	5·1	114	4·0	120	4·3
313	10·2	277	9·8	261	9·3
88	2·9	100	3·5	99	3·5
114	3·7	120	4·2	123	4·4
259	8·5	289	10·1	267	9·6
162	5·3	170	6·0	189	6·8
6	0·2	20	0·7	30	1·1
28	0·9	20	0·7	23	0·8
86	2·8	112	3·9	77	2·7
3,065	100·0	2,845	100·0	2,800	100·0
2,734	—	2,568	—	2,375	
5,799	—	5,413	—	5,175	

Occupations, and Percentages of the whole Population (in Thousands).

1861.		1871.		1881.	
Numbers.	Percentage.	Numbers.	Percentage.	Numbers.	Percentage.
3,020	52·1	2,635	48·7	2,562	49·5
23	0·4	28	0·5	31	0·6
29	0·5	25	0·4	23	0·4
192	3·3	172	3·2	176	3·4
879	15·2	777	14·3	640	12·4
137	2·4	154	2·8	148	2·9
227	3·9	237	4·4	234	4·5
463	8·0	481	8·9	427	8·2
266	4·6	278	5·1	309	6·0
371	6·4	409	7·6	457	8·8
54	0·9	46	0·9	52	1·0
138	2·3	171	3·2	116	2·3
5,799	100·0	5,413	100·0	5,175	100·0

APPENDIX C.

Comparison of the Industrial Constitution of England with that

[In Thousands.]

	1851.		1861.	
	Number.	Percentage.	Number.	Percentage.
Agriculture—				
England and Wales	1,760	20·9	1,700	18·0
Scotland	299	22·7	276	20·1
Ireland	1,460	48·4	1,173	42·9
Fishing—				
England and Wales	17	0·2	17	0·2
Scotland	20	1·5	23	1·7
Ireland	11	0·4	8	0·3
Mining—				
England and Wales	335	4·0	425	4·5
Scotland	52	4·0	62	4·5
Ireland	12	0·4	10	0·4
Building—				
England and Wales	461	5·5	549	5·8
Scotland	69	5·2	82	5·9
Ireland	58	2·0	66	2·4
Manufacture—				
England and Wales	2,755	32·7	3,117	33·0
Scotland	480	36·5	481	35·0
Ireland	687	22·8	566	20·7
Transport—				
England and Wales	345	4·1	436	4·6
Scotland	47	3·6	56	4·1
Ireland	43	1·4	49	1·8
Dealing—				
England and Wales	547	6·5	674	7·1
Scotland	74	5·6	89	6·5
Ireland	109	3·6	114	4·1
Industrial Service—				
England and Wales	377	4·5	378	4·0
Scotland	50	3·8	54	3·9
Ireland	71	2·3	204	7·5
TOTAL OF INDUSTRY—				
England and Wales	6,597	78·4	7,296	77·2
Scotland	1,091	82·9	1,123	81·7
Ireland	2,451	81·3	2,190	80·1

APPENDIX C.

of Scotland, and that of Ireland, at each Decade, 1851 *to* 1881.

[In Thousands.]

1871.		1881.		Increase		Decrease	
Number.	Percentage.	Number.	Percentage.	In Number.	Of Percentage.	In Number.	Of Percentage.
1,504	14·2	1,341	11·5	—	—	419	9·4
258	17·3	234	14·2	—	—	65	8·5
1,046	40·7	986	41·1	—	—	474	7·3
21	0·2	30	0·3	13	0·1	—	—
27	1·8	31	1·9	11	0·4	—	—
10	0·4	11	0·5	—	0·1	—	—
475	4·5	562	4·8	227	0·8	—	—
76	5·1	84	5·0	32	1·0	—	—
9	0·3	8	0·4	—	—	4	—
664	6·3	796	6·8	335	1·3	—	—
94	6·3	111	6·7	42	1·5	—	—
57	2·2	56	2·4	—	0·4	2	—
3,358	31·6	3,599	30·7	844	—	—	2·0
518	34·7	557	33·8	77	—	—	2·7
500	19·5	379	16·0	—	—	308	6·8
524	4·9	654	5·6	309	1·5	—	—
73	4·9	85	5·2	38	1·6	—	—
54	2·1	49	2·2	6	0·8	—	—
838	7·8	924	7·8	377	1·3	—	—
106	7·1	123	7·5	49	1·9	—	—
117	4·6	111	4·8	2	1·2	—	—
636	6·0	785	6·7	408	2·2	—	—
67	4·5	102	6·2	52	2·4	—	—
193	7·5	160	6·7	89	4·4	—	—
8,020	75·5	8,691	74·2	2,094	—	—	4·2
1,219	81·7	1,327	80·5	236	—	—	2·4
1,986	77·3	1,760	74·1	—	—	691	7·2

Comparison of the Industrial Constitution of England with that of

[In Thousands.]

	1851.		1861.	
	Number.	Percentage.	Number.	Percentage
Public and Professional Service—				
England and Wales	399	4·6	505	5·3
Scotland	46	3·5	53	3·9
Ireland	65	2·2	102	3·7
Domestic Service—				
England and Wales	1,121	13·3	1,384	14·6
Scotland	138	10·5	165	12·0
Ireland	283	9·4	365	13·3
Others—				
England and Wales	312	3·7	268	2·9
Scotland	41	3·1	33	2·4
Ireland	217	7·1	77	2·9
TOTAL NON-INDUSTRIAL—				
England and Wales	1,832	21·6	2,157	22·8
Scotland	225	17·1	251	18·3
Ireland	565	18·7	544	19·9
WHOLE EMPLOYED OR SELF-SUPPORTING POPULATION—				
England and Wales	8,429	100·0	9,453	100·0
Scotland	1,316	100·0	1,374	100·0
Ireland	3,016	100·0	2,734	100·0

Summary of

Employed—				
England and Wales	8,429	47·0	9,453	47·1
Scotland	1,316	45·6	1,374	44·9
Ireland	3,016	46·0	2,734	47·1
Dependent—				
England and Wales	9,499	53·0	10,613	52·9
Scotland	1,572	54·4	1,688	55·1
Ireland	3,536	54·0	3,065	52·9
Total Population—				
England and Wales	17,928	100·0	20,066	100·0
Scotland	2,888	100·0	3,062	100·0
Ireland	6,552	100·0	5,799	100·0
United Kingdom	**27,368**	—	**28,927**	—

Scotland, and that of Ireland, at each Decade, 1851 *to* 1881—*Contd.*

[In Thousands.]

1871.		1881.		Increase, 1851-81.		Decrease, 1851-81.	
Number.	Percentage.	Number.	Percentage.	In Number.	Of Percentage.	In Number.	Of Percentage.
578	5·5	660	5·6	261	1·0	—	—
56	3·8	70	4·2	24	0·7	—	—
110	4·3	121	5·0	56	2·8	—	—
1,684	15·8	1,838	15·7	717	2·4	—	—
160	10·7	183	11·1	45	0·6	—	—
389	15·2	427	18·0	144	8·6	—	—
342	3·2	524	4·5	212	0·8	—	—
57	3·8	68	4·2	27	1·1	—	—
83	3·2	67	2·9	—	—	150	4·2
2,604	24·5	3,022	25·8	1,190	4·2	—	—
273	18·3	321	19·5	96	2·4	—	—
582	22·7	615	25·9	50	7·2	—	—
				(Increase in	30 years)	(Decrease	in 30 years)
10,624	100·0	11,713	100·0	3,284	38·9	—	—
1,492	100·0	1,648	100·0	332	25·2	—	—
2,568	100·0	2,375	100·0	—	—	641	21·2

whole Population.

10,624	46·8	11,713	45·1	3,284	—	—	1·9
1,492	44·4	1,648	44·1	332	—	—	1·5
2,568	47·4	2,375	45·9	—	—	641	0·1
12,088	53·2	14,261	54·9	4,762	1·9	—	—
1,868	55·6	2,088	55·9	516	1·5	—	—
2,845	52·6	2,800	54·1	—	0·1	736	—
				(Increase	or decrease	in 30	years.)
22,712	100·0	25,974	100·0	8,046	44·9	—	—
3,360	100·0	3,736	100·0	848	29·4	—	—
5,413	100·0	5,175	100·0	—	—	1,377	21·0
31,485	—	**34,885**	—	**7,517**	27·4	—	—

APPENDIX D.

The Useless Classes.

The following was the number of these classes in 1861, 1871, and 1881, exclusive of vagrants, of whom no returns are available:—

England and Wales.

[In thousands and decimals of a thousand.]

	1861.		1871.		1881.	
	Number.	Percentage to whole Population.	Number.	Percentage to whole Population.	Number.	Percentage to whole Population.
Paupers (in-door)	124·1	0·62	148·2	0·65	182·5	0·70
,, (out-door)	718·6	3·58	829·0	3·65	575·5	2·22
Insane (all classes)	39·6	0·20	56·7	0·25	73·1	0·28
Prisoners (in gaols)....	26·1	0·13	28·7	0·13	27·9	0·11
Total	908·4	4·53	1062·6	4·68	859·0	3·31

Scotland.

	1861.		1871.		1881.	
	Number.	Percentage to whole Population.	Number.	Percentage to whole Population.	Number.	Percentage to whole Population.
Paupers (in-door)	117·1	3·82	123·6	3·68	99·3	2·66
,, (out-door)						
Insane (all classes)	8·6	0·28	11·4	0·34	14·4	0·39
Prisoners (in gaols)....	2·1	0·07	2·6	0·08	2·7	0·07
Total	127·8	4·17	137·6	4·10	116·4	3·12

Ireland.

	1861.		1871.		1881.	
	Number.	Percentage to whole Population.	Number.	Percentage to whole Population.	Number.	Percentage to whole Population.
Paupers (in-door)	50·6	0·87	49·0	0·91	56·0	1·08
,, (out-door)	4·6	0·08	24·1	0·45	63·8	1·23
Insane (all classes)	14·1	0·24	16·5	0·30	17·4	0·34
Prisoners (in gaols)....	3·7	0·07	3·7	0·07	3·3	0·06
Total	73·0	1·26	93·3	1·73	140·5	2·71

Note.—The totals of paupers are taken from the returns of the Poor Law authorities, and correspond, as nearly as practicable, with the dates of each census. The figures for England and Ireland give the number of paupers relieved during the first week of April in each decennial year, but those for Scotland give the number on the roll on the 14th May at each period.

APPENDIX E.

Army and Navy.

The following was the number of the British Army and Navy serving abroad at the date of the censuses:—

[In thousands and decimals of a thousand.]

	1861.	1871.	1881.
Army	120·4	88·0	94·3
Navy	43·2	19·8	21·5
Marines		3·8	3·6
	163·6	111·6	119·4

Merchant Seamen.

The number of merchant seamen attached to British vessels abroad at the date of the censuses was as under:—

[In thousands and decimals of a thousand.]

1861.	1871.	1881.
99 5	116·6	120·6

APPENDIX F.—*Increase and Decrease of Population.*

Districts.	Urban.							
	Increasing Areas.			Decreasing Areas.			Stationary.	Total.
	Population.	Increase.	Per Cent.	Population.	Decrease.	Per Cent.	Population.	Population.
London, Surrey, Kent, Sussex, Middlesex, and Essex	5,176	927	21·8	37	2	5·1	89	5,302
Hampshire and Wiltshire	327	54	20·0	43	2	4·4	37	407
Somerset, Dorsetshire, Devonshire, and Cornwall..	379	33	9·5	96	8	7·7	140	615
Berkshire, Oxfordshire, Buckingham, and Hertfordshire	214	28	15·1	14	1	6·7	14	242
Norfolk, Suffolk, Cambridge, and Huntingdon	314	37	13·4	26	2	7·1	38	377
Bedford and Northampton....	142	33	30·3	4	—	—	5	151
Gloucester, Worcester, Hereford, and Shropshire	595	66	12·5	31	2	6·1	44	670
Staffordshire, Warwickshire, and Leicestershire	1,409	245	21·0	85	6	6·6	61	1,555
Nottingham and Derby	471	115	32·3	—	—	—	4	475
Lincoln and Rutland	142	39	37·9	—	—	—	30	172
Lancashire and Cheshire	3,109	668	27·4	347	10	2·8	15	3,471
Yorkshire	2,098	390	22·8	26	1	3·7	36	2,160
Northumberland and Durham	789	139	21·4	18	2	10·0	—	807
Cumberland and Westmoreland	122	21	20·8	—	—	—	14	136
Monmouth, Glamorgan, and Carmarthenshire	419	108	34·7	106	7	6·2	11	536
Pembroke, Cardigan, Radnor, and Brecknock.....	33	3	10·0	18	1	5·3	—	51
Montgomery, Merioneth, Flint, Denbigh, Carnarvon, and Anglesea	108	19	21·3	6	1	14·3	11	126
	15,847	2,925	22·6	857	45	5·0	549	17,253

Urban areas consist of urban sanitary districts with over 3,000 inhabitants (in 1881). Percentages are calculated on the population of 1871.

England and Wales, 1871-81. (*In Thousands.*)

Rural.								Total Population in Thousands.	Districts.
Increasing Areas.			Decreasing Areas.			Stationary.	Total.		
Population.	Increase.	Per Cent.	Population.	Decrease.	Per Cent.	Population.	Population.		
723	123	20·5	240	17	6·6	148	1,111	6,413	London, Surrey, Kent, Sussex, Middlesex, and Essex
118	15	14·6	208	14	6·3	93	419	826	Hampshire and Wiltshire
168	14	9·1	695	72	9·4	89	952	1,567	Somerset, Dorsetshire, Devonshire, and Cornwall
224	25	12·6	254	21	7·6	70	547	789	Berkshire, Oxfordshire, Buckingham, and Hertfordshire
66	5	8·2	437	31	6·6	155	659	1,037	Norfolk, Suffolk, Cambridge, and Huntingdon
100	10	11·1	126	12	8·7	55	281	432	Bedford and Northampton
241	34	16·4	296	25	7·8	95	632	1,302	Gloucester, Worcester, Hereford, and Shropshire
381	65	20·6	135	11	7·5	43	559	2,114	Staffordshire, Warwickshire, and Leicestershire
221	35	18·8	60	5	7·7	71	352	827	Nottingham and Derby
113	8	7·6	152	12	7·3	50	315	487	Lincoln and Rutland
435	71	19·5	68	14	17·1	99	602	4,073	Lancashire and Cheshire
394	78	24·7	182	16	8·1	159	735	2,895	Yorkshire
409	94	29·7	61	8	11·6	35	505	1,312	Northumberland and Durham
106	16	17·8	50	7	12·3	23	179	315	Cumberland and Westmoreland
216	44	25·6	79	7	8·1	35	330	866	Monmouth, Glamorgan, and Carmarthenshire
42	2	5·0	143	11	7·2	16	201	252	Pembroke, Cardigan, Radnor, and Brecknock
182	33	22·3	75	7	8·5	85	342	467	Montgomery, Merioneth, Flint, Denbigh, Carnarvon, and Anglesea
4,139	672	19·2	3,261	290	8·2	1,321	8,721	25,974	(in 1881)

Note.—The figures of urban net increase given in this table are overstated by 204,000, and those of rural net increase are similarly understated. This is mainly owing to changes of boundary which have taken place between 1871 and 1881, and which have thrown into the urban districts of 1881 a large population which was previously counted as rural. It is impossible to correct this error, because the census affords no clue to the particular districts in which the alterations of boundary have occurred.

APPENDIX G.

Influx and Exodus of Population. England

Districts.	Urban.					
	Increasing Areas.		Stationary.	Decreasing.	Total.	
	Influx.	Exodus.	Exodus.	Exodus.	Influx.	Exodus.
London, Surrey, Kent, Sussex, Middlesex, and Essex	265	—	13	7	245	—
Hampshire and Wiltshire	15	—	5	8	2	—
Somersetshire, Dorsetshire, Devonshire, and Cornwall	—	18	20	22	—	60
Berkshire, Oxfordshire, Buckinghamshire, and Hertfordshire	—	4	2	3	—	9
Norfolk, Suffolk, Cambridge, and Huntingdon	—	4	5	6	—	15
Bedford and Northampton	16	—	—	—	16	—
Gloucester, Worcester, Hereford, and Shropshire	—	13	6	7	—	26
Staffordshire, Warwickshire, and Leicestershire	64	—	9	18	37	—
Nottingham and Derby	57	—	—	—	57	—
Lincoln and Rutland	22	—	4	—	18	—
Lancashire and Cheshire	279	—	2	60	217	—
Yorkshire	123	—	5	5	113	—
Northumberland and Durham	38	—	—	5	33	—
Cumberland and Westmoreland	5	—	2	—	3	—
Monmouth, Glamorgan, and Carmarthen	57	—	2	23	32	—
Pembroke, Cardigan, Radnor, and Brecknock	—	2	—	4	—	6
Montgomery, Merioneth, Flint, Denbigh, Carnarvon, and Anglesea	5	—	2	1	2	—
	946	41	77	169	775	116
	905				659	
			Emigration		164	
					823	

Note.—This table is subject to correction for those transferred

APPENDIX G.

and Wales, 1871 *to* 1881. (*In Thousands.*)

Rural.						Districts.
Increasing Areas.		Stationary.	Decreasing.	Total.		
Influx.	Exodus.	Exodus.	Exodus.	Influx.	Exodus.	
30	—	22	51	—	43	London, Surrey, Kent, Sussex, Middlesex, and Essex
—	1	13	45	—	59	Hampshire and Wiltshire
—	10	13	176	—	199	Somersetshire, Dorsetshire, Devonshire, and Cornwall
—	5	10	58	—	73	Berkshire, Oxfordshire, Buckinghamshire, and Hertfordshire
—	4	21	96	—	121	Norfolk, Suffolk, Cambridge, and Huntingdon
—	3	8	30	—	41	Bedford and Northampton
2	—	13	69	—	80	Gloucester, Worcester, Hereford, and Shropshire
16	—	6	31	—	21	Staffordshire, Warwickshire, and Leicestershire
6	—	10	14	—	18	Nottingham and Derby
—	7	7	34	—	48	Lincoln and Rutland
15	—	14	25	—	24	Lancashire and Cheshire
28	—	23	43	—	38	Yorkshire
43	—	5	16	22	—	Northumberland and Durham
2	—	3	14	—	15	Cumberland and Westmoreland
17	—	5	19	—	7	Monmouth, Glamorgan, and Carmarthen
—	4	2	32	—	38	Pembroke, Cardigan, Radnor, and Brecknock
10	—	12	18	—	20	Montgomery, Merioneth, Flint, Denbigh, Carnarvon, and Anglesea
169	34	187	771	22	845	
135				823		

from rural to urban by changes of boundary (see Note, Appendix F).

Discussion *on* Mr. Booth's Paper.

Mr. A. R. Wallace said Mr. Booth had raised two chief objections to his (Mr. Wallace's) statements and conclusions, the first being that his idea with reference to the depopulation of the rural districts was rendered fallacious, because many urban sanitary districts had decreased in population in the ten years, and he had taken all such decreasing areas to be rural. The explanation was very simple. There were in England somewhere about two hundred parliamentary boroughs, and roughly speaking nine-tenths of these coincided with urban sanitary districts. Those boroughs, many of them very ancient, and urban sanitary districts which appeared to have decreased in population, simply appeared to have done so for this reason, that long before ten years ago they were built over to their fullest extent, and since then all the increase had been outside. In a great many cases as a town or borough went on increasing, the natural result was that cottages and poor dwellings were pulled down, and large shops and warehouses built in their places; that at once caused a decrease of the population, but the whole of that population went to the suburbs. Such places were to be counted in England by the score, perhaps by the hundred. The increase that had taken place had spread over the surrounding country, and made the adjoining rural districts appear to have increased when they had really decreased; and for this reason he maintained that his (Mr. Wallace's) figures were considerably under the mark. The second objection was that he had made a mistake in estimating a more rapid increase of the rural population over the urban, because he assumed that the birth-rate in the rural district, especially among the class who had migrated, viz., the labouring class, was greater than the birth-rate in towns. There was very distinct proof that the birth-rate given in the reports of the Registrar for Births, Deaths, and Marriages could not be taken as showing the real birth-rate of those rural districts. It was acknowledged as an undoubted statistical principle that this very migration, which had been going on for many decades, completely altered and rendered untrue the apparent birth-rate, the reason being that the migration from the rural districts to the towns was mainly a migration of young adults, necessarily reducing the birth-rate in the rural districts below the natural rate, because those who were just going to produce children went into the towns to produce them. An admitted fact like that showed that a statistical or official birth-rate was no true measure of the real birth-rate. The only way to get at it would be to go into a district and find out a number of genuine rural families—those who had lived in the country their whole lives—take their birth-rate, and compare it with that of another equal number of families who had lived all their lives in towns. They would then have a strict comparison of the genuine birth-rate of the country as compared with that of

the towns, and it was to that that he had alluded. For similar reasons the official death-rate of rural areas was too high, first, because when a large proportion of the young and vigorous had migrated, the old and the very young who remained tended to raise the average rate of mortality; and, secondly, because in many cases those who had gone away in health returned when sick to their native villages, and again helped to increase the mortality. These two causes of error would have to be allowed for in estimating what the population would have been had no migration taken place from the rural districts, which was what he (Mr. Wallace) had attempted to do, and he maintained that he had by no means exaggerated it.

Dr. W. Ogle referring to Mr. Booth's suggested improvements in census returns, said the tables of occupations and the report were published within a week or two of each other, and the only reason why they were two separate volumes was to enable the public to buy one or other of them as they pleased. Even, therefore, if it were true that the explanation of the tables was to be found in the general report, there would still be no practical grievance; but as a matter of fact he entirely denied the statement that these tables of occupations did not carry on their face an entire and sufficient explanation of their contents. The general report contained not an explanation of the tables, but the conclusions to be drawn from them, and comparisons between them and corresponding tables in the previous censuses. The foot notes to the tables of occupations were drawn up with very considerable care, and appeared to contain everything that was necessary for their full comprehension. Mr. Booth suggested a different classification of occupations from that which had been adopted—those who produced raw material, those who made finished articles, and those who distributed them. It would, however, be impossible to preserve that distinction. How, for instance, could they distinguish those who made hats from those who sold them, seeing that both the makers and the sellers simply returned themselves as hatters—or how could they distinguish the man who made shoes from the man who sold them? The fact was the terms in which people returned themselves to the census did not enable them to be distinguished in the way Mr. Booth suggested. The goodness of a classification depended entirely upon the purpose for which they were going to use it; for instance, a classification of occupations which was good for a political economist would be very different to that which would approve itself to a sanitary administrator. The object aimed at in the classifications adopted in the 1881 census was simply to facilitate comparison with previous censuses, but inasmuch as the census authorities were fully alive to the fact that other people would wish to arrange the occupations in other and various ways, these were also given alphabetically, so that any one could classify and arrange them in the way that suited his special purpose. It was suggested, as it had been suggested many times before, that the employers should be distinguished from the employed, and no doubt such a distinction would be valuable. He

could assure Mr. Booth that nobody was more anxious than those concerned in the census that, were it possible, such a distinction should be made, and special directions were given on the schedule that every worker should state whether he was master or man; but it was all in vain; workmen would not do anything of the kind. He believed that out of the 26 millions of people in England and Wales, there were not 1,000 who had returned themselves as journeymen anything. A man called himself a baker, whether he were a journeyman baker or master baker, and so with other trades; it was impossible to distinguish them. Mr. Booth also suggested that certain special subjects should be taken up from time to time, and the one that he mentioned was a very good example of the kind of thing which statisticians were too anxious to demand from the census. Mr. Booth wished that the census should be used in order to find out the laws and conditions under which a child born was of one or the other sex. Everyone who had a hobby, or question he was unable to solve, thought he could make use of the machinery of the census in order to get the data he wanted, and as Mr. Booth himself said, "*every one present* would have some subject to suggest for such inquiry." Even the one inquiry that Mr. Booth had suggested would involve the addition of seven or eight different questions to the schedule. He strongly deprecated using the machinery of a census for purposes entirely outside of it. It was already a most complicated task, and one excessively difficult to bring to a successful issue, and every additional complexity added to that would, though it gave the appearance of covering more ground, diminish the accuracy of the figures. It was one thing to ask questions, another to get satisfactory answers; and he was strongly of opinion that if they asked questions such as had often been suggested—questions for instance, as to a person's religious opinions, or as to his wages, or the like—they would get a mass of answers, the tabulation of which would not merely be a waste of public money, but, what was much worse, would serve for the propagation of that most pernicious of pernicious things, false statistical statements, put out officially, and therefore accepted as authoritative. He could give a good illustration of the uselessness of asking inquisitorial questions. In the present schedule householders were called on to say what persons in their families were idiots; and the answers to this question were tabulated with much care, and of course at considerable cost. But he had afterwards obtained the exact addresses of a number of indisputable idiots who had been admitted soon after the census into asylums; and, on looking back to the enumeration books, he found that in exactly half the cases no mention had been made of the mental deficiency of these idiots. Thus the figures put out in the census volumes under this heading were utterly untrustworthy, and, as he said before, the cost of preparing them was worse than wasted.

Dr. G. B. Longstaff said that if a supplementary table could be given, not necessarily for the separate districts, but certainly for the whole country, showing even approximately the number of

persons dependent upon each industry, the return would be of very great value for the purposes of political economists, philanthropists, and others interested in social questions. A table might comparatively easily be prepared with a foot note such as Dr. Ogle had told them of, stating that the table was not and could not be accurate. He supported Mr. Booth's suggestion that people absolutely in prison, lunatics, and such like, might very well be entered altogether separately from their occupation. It might be interesting to analyse the occupations of criminals, but they should not be included under both descriptions. If they were entered as working at their trade, that was an error. Then, as to the number of people employed in agriculture, there were many people so employed who at first sight might not be considered to be so; for instance, makers of agricultural implements, those who worked in the production of artificial manure, and to a large extent makers of oil cake, all of whom were practically employed in agriculture, that was to say their occupation was subservient to the cultivation of the soil. There was one point in the paper by which people might be deceived, namely, the confusion between absolute and relative quantities. It was a mistake that people were very liable to fall into. Mr. Booth spoke of the increase of population being greatest in small towns, and least in the great towns. With regard to the percentage increase, that was no doubt true, but at the same time the absolute increase of the largest towns was greater than the absolute increase collectively of the smallest towns. In this and one or two other cases it would be well if, alongside of his percentages, Mr. Booth had given the absolute numbers. When they came to the rural and urban districts there were fallacies on either hand, and it was very desirable that in treating these questions they should not try to go so absolutely into the distinction between town and country as Mr. Booth would endeavour to do. In the urban districts of large towns there would be found a very large number of truly rural people. The towns were surrounded by farms, which farms were apt to contain a somewhat larger proportion of labourers, and these farms were within the urban district, and hence an absolutely rural population was reckoned as urban. In the small towns the absolute number of the rural population included within the area might not be greater, but the relative proportion would be very much larger in an urban district of 2,000 or 3,000 inhabitants than in one of 40,000 or 50,000. If, therefore, they wished really to distinguish between rural and town population, they would probably do better by not going too low in their definition of a town. In a town of 40,000 inhabitants, 95 per cent. of the people were really urban; but in a town of 3,000 inhabitants, farmers and labourers would be found living in the town itself, and therefore there might be only 60 per cent. of the population truly urban. Such small towns were hardly distinguishable in their character from agricultural villages. Their condition of life with regard to sanitation, occupation, wages, and all those evils with which social reformers were concerned, was very much more that of rural people than of urban; and that was another reason why they

should not make too fine a distinction. In speaking of the "true birth-rate," a great deal depended upon what was meant by "true." It was possible to obtain what he thought Mr. Wallace meant by the true birth-rate from the existing returns, viz., by taking a county or large area in which there were very few towns, and the vast majority of the population was rural, it was possible to find out from the census what was the number of people of child-bearing age and the proportion of children born to those people. The same might be done as to the towns. In reply to Mr. Wallace he stated that the migration from country to town was greater in France than in England, and he was informed that it was the same in Germany and the New England States of America. In those places it was obvious that the proportion of land to population, the land laws, and whole system of land tenure were entirely different to England, and therefore whatever the causes which attracted people from the country into the towns, the attractive (or repellent) forces had nothing whatever to do with the land system or the land laws in any of those countries.

Mr. N. A. Humphreys said that Mr. Wallace's contention that to the rural birth-rates ought to be added the birth-rate of emigrants from rural districts into towns, would lead to considerable difficulty, as it would be impossible to estimate how many of such births ought really to be considered the offspring of residents in rural districts. Dr. Longstaff's suggestion that birth-rates should be calculated on the numbers of married women of child-bearing ages was a good one, and it was one which had already been carried out to some extent in the registrar-general's reports. In a recent report were published a set of birth-rates for all the counties in England, some of which are distinctly rural, and it was found the real birth-rate in the distinctly rural counties was, generally speaking, as high as that in the towns. He concurred to a great extent with Mr. Booth in wishing that it was possible to ascertain the number of dependents. He had, however, not been sufficiently explicit to define what he meant by dependents, but if he included not only the wives but the children and the old people, who either were dependent upon the bread winners or had been dependent upon those occupations, he feared the practical determination of the number of dependents would be found very difficult. At the same time he freely acknowledged the importance of this matter for the purpose of social, as opposed to occupational mortality statistics. As an example of how this information might be turned to account, he referred to an experiment made by the registrar-general of Ireland, who in his weekly and quarterly returns had attempted to give social mortality statistics based upon census returns dealt with somewhat in the way suggested by Mr. Booth. He divided the total population of the city of Dublin, only a little over 300,000 persons, into four social classes, including not only persons engaged in occupations embraced by each class, but the dependents upon each occupation. As an instance of the immense value both from a public health and from a social point of view of information of this kind, the Irish figures showed that

the numbers of dependents varied in a very remarkable way, and prove that Mr. Booth's attempt to distribute ratably the dependents in simply arithmetical proportion over the whole of the occupations would lead to very fallacious results. The children under 5 in the professional class were only 75 to the 1,000 of the whole population. This class marries later, and as a rule has not such large families as other classes. In the middle class they were 109 to the 1,000; in the artisan class 121; and in the general service class 105. Coming to the dependents at the other end of the scale, 60 years and upwards, it appears that the professional class were 158 in the 1,000, in the middle class only 48, the artisan 63, and general service 74. The death-rate among children of the professional classes under 5 years of age was only 22 per 1,000 living, in the middle class 59, the artisan class 71, and in the general service, including the working classes, 110. These figures had not, however, been shown by the registrar-general, who had only supplied the facts from which they were derived. Having been engaged in the service of more than one census, he was sure that no one who was intimately acquainted with this elaborate operation, could possibly doubt that it was desirable to simplify as far as possible the objects of inquiry, in order to secure greater accuracy of the figures treating on those subjects. One of the points to be arrived at, and to which that Society should lend its weight, was that the occupational statistics should be improved, and that could only be done by additional expenditure of money in order to increase very largely the number of enumerators. If that were done, there would be a chance of the securing greater accuracy with regard to the particulars now given, which would add very materially to the value of the census figures, and of statistics based upon them.

Mr. A. R. Wallace wished to state in reply to Dr. Longstaff that in fundamentals the land systems of France, Germany, and America were the same as those of England, and the reason why the same result had been produced in the three cases was simply this, that neither in France, in Germany, nor in the eastern States of America was there any provision whatever under the land system for the extension of the population upon the land; consequently as the population increased the surplus could not support itself on the land, and must necessarily go to the towns. The causes were identically the same in each country, and the result was therefore the same.

Mr. J. S. Jeans said that in almost every European census except our own the employés were distinguished from the employed, and dependents from those engaged in actual work. He did not therefore see why, if it was possible in such countries as France, Germany, and Belgium to separate these classes, it should not be equally possible in this country. As an instance of the remarkable economy of labour that had resulted from improved processes and machinery, he ought to mention that he had occasion sometime ago to inquire into the subject of the number of employés

engaged in the shipping trade, and he found that if the same relation of employés to results prevailed now as prevailed fifteen or twenty years ago, the number of men engaged in the shipping industry, as a whole, would be nearly 70,000 more than it was at the present time. The author had mentioned the fact that railway labour, according to the census returns, had increased from 25,000 to 139,000. He believed a return was recently presented to Parliament which showed that the total number of railway employés in the country at the end of 1883 was close upon 300,000. It was impossible that an increase from 139,000 to nearly 300,000 should have occurred in the four years between 1880 and 1884, so that surely the census or the author must be held to be responsible for some mistake with regard to that particular item.

Dr. Wm. Ogle in answer to the statement that in foreign countries they were able to separate masters from men, and therefore there was no reason why it should not be done in England, said in all probability the explanation was that in this country the householder's schedule was filled up by the man himself, whereas in foreign countries it was filled up by officials. The great mass of people who filled up their own schedules in England were uneducated and suspicious of every question put to them, and as a matter of fact they did not state whether they were journeymen or not. In foreign countries where they were filled up by various officials, all these answers could be got with much greater precision than they could in a country governed like England.

The President said the discussion that had taken place had been addressed to particular points in Mr. Booth's paper, and he certainly did not undervalue the importance of the objections raised. He should be very glad to hear from Dr. Ogle or Mr. Humphreys whether the author's general comparison of the occupations of the people in each of the three kingdoms at the different censuses since 1851, divided as they were into large classes, held good and could be relied upon. He looked upon that as one of the most valuable features of Mr. Booth's paper, but he should be sorry to rely upon it if the figures were not really comparable. The censuses for the United Kingdom from 1851 to 1881 showed on comparison that the proportion of persons engaged in agriculture in England had fallen off in those forty years 45 per cent., in Scotland 37 per cent., and in Ireland 15 per cent. Those engaged in manufacture had fallen off in England 6 per cent., in Scotland 9 per cent., and in Ireland 30 per cent. He would suggest that the author should add an appendix to his paper showing in a table the comparison of the proportion of the population in each of the three kingdoms from 1851 to 1881, how it had been increasing or decreasing. He was sure they could not sufficiently thank Mr. Booth for the immense industry he had displayed in collecting this information, and whatever objection there might be to the results as derived from the figures available, they set an example of what they ought to be able to do, and hoped in future years

to be able to do, namely, to compare one census with another, and derive therefrom certain and positive information as to the progress of the population.

Mr. Charles Booth, replying to Dr. Ogle, explained that owing to some misunderstanding, possibly on the part of his bookseller, he did not get the report, until long after the census was published, and then after working for months on the census, by a mere accident he discovered the fact that there was such a report; the result was that he had to go through a large part of the work over again. He thought it would be well if the whole thing could be published simultaneously, even if the other volumes had to be delayed until the report was ready. Dr. Ogle said the tables explained themselves. He could only assure him that they did not explain themselves to himself and his secretary. He had studied them very completely, and thought he could point out cases in which there was no remark to guide inquirers, and with regard to which information was found afterwards given in the report. At any rate, he had been misled, and so had other competent authorities, such for instance as the "Economist" newspaper. In answer to Mr. Humphreys, by dependents he meant simply the unemployed wives and children of the workers. He also wished to point out that the classification adopted by the census authorities and by himself was not in any sense a social one. All grades of society were represented in each class of occupations, and therefore the remarks of Mr. Humphreys in regard to the variation in the number of dependents in different ranks of society did not affect his calculations. The main difference between his figures and those of Mr. Wallace undoubtedly lay in their respective definitions of "rural districts." He (Mr. Booth) had accepted the theory of the Registrar-General in drawing the line at urban sanitary districts of 3,000 inhabitants. It was a rough rule. Under it many urban inhabitants would, as Dr. Longstaff pointed out, be living under rural conditions, and even with rural occupations; and on the other hand, many so-called rural inhabitants would be living under urban conditions, as Mr. Wallace contended. He knew of no way of making a numerical division by locality which should take all such points into account. The rule must be a rough one in any case, and he saw no reason to doubt the practical justice of the Registrar-General's assumption. If, however, it was not the conditions of life, but the character of employment, that was in question (and this seemed to be, at bottom, the point with Mr. Wallace), he thought the occupation returns should be their guide. From these we knew that the number of agricultural labourers and small farmers had decreased, but we did not know what all the rest of the rural population (however defined) were doing, and this he thought the tables ought to be arranged to show. As to the other point in dispute, it must be admitted that if the exodus from the rural districts had been mostly of those who were at the age of greatest reproduction, it would affect both birth-rate and death-rate; fewer per 1,000 would be born, and more per 1,000 would die than would have been the case with a

population of normal ages, and the result would be to make the natural increase that has been, less than the increase that would have been if no such movement had taken place. But this consideration would not involve any error in his calculations. The unborn children of a moving population could hardly be counted as units in an exodus (as Mr. Wallace had done in his book); the most that could be said was that if their parents had not left the country districts, the country population would have included the children as well as the parents.

The PRESIDENT in proposing that the thanks of the Society be given to Mr. Booth, expressed the hope that the paper would not be a fruitless one, but would be found to contain permanently valuable information, and might possibly suggest useful comparisons for the future.

MISCELLANEA.

CONTENTS :

	PAGE
I.—Emigration and Immigration in the Year 1885	445
II.—The Migration and Condition of the Agricultural Population in Germany. (A translation)	450
III.—Progressive Means. By F. Y. Edgeworth, Esq., M.A., F.S.S.	469
IV.—Census of Part of the North-West Territories of Canada (1885)	476
V.—Index to the Catalogue of the Library	480
VI.—Statistics of the Newspaper and Periodical Press	480
VII.—Notes on some Recent Additions to the Library	482
VIII.—Quarterly List of Additions to the Library	494

I.—*Emigration and Immigration in the Year* 1885.

The following is a copy of Mr. Giffen's report to the Secretary of the Board of Trade on the "Statistical Tables relating to Emigration and Immigration from and into the United Kingdom in the year 1885:"—

"In presenting the usual tables relating to emigration and immigration for the year 1885, I have to call attention to the farther decline of emigration, and of the excess of emigrants over immigrants which has taken place during the year. In 1884, it will be recollected, there was a decline as compared with 1883, a very large decline among persons of British and Irish origin only; and now there is a farther decline, which is not so marked in itself as the decline in the previous year, but which contributes to make the total decline in the emigration since the maximum years of 1882 and 1883 very considerable. The principal figures can be very shortly stated, with the help of the usual summary tables included in this report.

"Dealing first with the figures as to emigration alone, the main facts are as follows:—

(*a.*) *Emigration in* 1885 *and* 1884.

	Total, including Foreigners.	Emigrants of British and Irish Origin only.
Number of emigrants in 1885	264,385	207,644
„ '84	303,901	242,179
Decrease in 1885	39,516	34,535

"The falling off in total emigration is thus from 303,901 to 264,385; and the falling off from the maximum in 1882 is from 413,288, or very nearly two-fifths. As regards the emigration of

persons of British and Irish origin only, the falling off in 1885 as compared with 1884 is from 242,179 to 207,644, the falling off from the maximum in 1883 being from 320,118, or rather more than one-third. The figures are considerably higher than those which have often been touched in years of low emigration, particularly in the years 1875-79; and the proportion of emigration to population is also a high one, being 0·57 per cent., whereas in the period 1875-79 the percentage for the three years 1876-78 ranged from 0·28 to 0·33 only. The proportion of emigration to population can be more appropriately discussed, however, when the net emigration, the excess of emigrants over immigrants, is considered. As has been frequently pointed out in these reports, there is a return as well as an outward current of population; and although the outward current for various reasons may be studied by itself, there are some questions on which it is necessary to look at the balance between the two. The tables moreover deal with the whole passenger movement between the United Kingdom and places out of Europe, and there are necessarily included many persons who are neither emigrants nor immigrants in the proper sense of the word, but who travel from one country to another for business or pleasure without any purpose of permanent settlement. This passenger movement, as will afterwards be noticed, seems to be increasing rapidly, and renders it more necessary than ever to look at the balance of the movement, and not merely at the so-called emigration.

"Dealing with the immigration, so-called, only, we have the following figures:—

(*b.*) *Decrease of Immigration.*

	Total, including Foreigners.	Immigrants of British and Irish Origin only.
Number of immigrants in 1885	113,549	85,468
,, '84	123,466	91,356
Decrease in 1885	9,917	5,888

"Thus the immigrants returning in 1885 numbered 113,549, a decrease of 9,917 compared with 1884, and the immigrants of British and Irish origin only numbered 85,468, a decrease of 5,888. The peculiarity here is that whereas in 1884 there was an increase of immigration, which reached its maximum in that year, there is now a decline. This decline was fully anticipated in last year's report, there being a certain regularity in the rise and fall of emigration and immigration which suggested the anticipation. According to former experience it was stated all the figures for 1885 ought to be smaller than they were in 1884. It is too soon yet to affirm a general and unfailing law in the matter, but the regularity of the movement which has now been additionally confirmed by the experience of 1885 is in every way remarkable.

"The rule, as stated in last year's report, is to the effect that an increase of immigration accompanies generally an increase of emigration, and reaches its maximum in those years when the emigration begins to fall off from the maximum it has itself reached, and then in the succeeding years emigration and immigration both decline, the minimum, however, in the case of emigration preceding the minimum in the case of immigration, which as a rule occurs in the first year after the emigration, having declined, begins again to increase. Emigration had declined in 1884, and as that was the year of maximum immigration, the rule required that emigration and immigration should both fall off in 1885. This is what has happened. It now remains to be seen whether the increase of emigration will again precede the increase of immigration. According to former experience we should first look for a decline or a stationary condition as regards both emigration and immigration for a year or two, with a low excess of emigrants over immigrants.

"Coming to the excess of emigrants over immigrants, I have to state the following figures:—

(*c.*) *Excess of Emigrants.*

	Total Emigration and Immigration.	Emigration and Immigration of Persons of British and Irish Origin only.
Number of emigrants in 1885	264,385	207,644
„ immigrants '85	113,549	85,468
Excess of emigrants in 1885	150,836	122,176
Corresponding excess in 1884	180,435	150,823
„ '83	296,654	246,314
„ '82	330,484	224,655
„ '81	315,409	190,295
„ '80	263,978	180,535
„ '79	163,190	126,338
„ '78	69,712	57,958
„ '77	38,123	31,305
„ '76	44,665	38,065

"According to this, the excess of emigrants in the total emigration and immigration, that is, including foreigners, has fallen in 1885, as compared with 1884, from 180,435 to 150,836; and this last figure is rather less than one-half the maximum in 1882, from which there has been a steady decline, viz., 330,484. The excess in the emigration and immigration proper, that is, of persons of British and Irish origin only, has at the same time fallen in 1885, as compared with 1884, from 150,823 to 122,176, this last figure being also rather less than one-half of the maximum in 1883, from which there has been a steady decline, viz., 246,314. It will be observed that the maximum, as regards excess of emigrants over immigrants generally, was in 1882, whereas, as regards emigrants

and immigrants of British and Irish origin only, the maximum was in 1883. This point was fully dealt with in former reports, and is only noted again to prevent the assumption which might be made that emigration from the United Kingdom and emigration from foreign countries, at any rate as carried on through the United Kingdom, increase and diminish at precisely the same times. Generally they increase and diminish together, but at the time of the last maximum there was an apparent variation. There was not an exact coincidence in the years of maximum excess.

"In last year's report it was pointed out that the years of low emigration, and of a low excess of emigrants over immigrants, coincided, as a rule, with years of dull trade in the United States, which absorbs most of the emigrants. The low emigration of last year is a farther confirmation of the dependence of the emigration movement on the prosperity or dulness of trade in the countries which receive the emigrants. Hence it follows that, as dulness in trade is usually general in many countries at the same time, emigration falls off in the United Kingdom and in other old countries not when trade is prosperous, but when it is dull. It is itself determined generally by the superiority of new countries as compared with old, as a field for rude labour, but it goes on in prosperous times and not in times of depression. If there is a revival of emigration soon, this revival, according to all past experience, will be a sure indication of returning prosperity in the United States and other new countries.*

"The proportion of the emigrants to population, which has already been referred to in connection with the figures of gross emigration only, comes out in 1885, using the figures of net emigration only, that is, the excess of emigrants over immigrants,

* In former reports attention has been drawn to the question of change of route in emigration itself, which may affect some of the figures. In fact, of late years a certain portion of the emigration from the United Kingdom has gone to the United States by way of the continental ports, Antwerp, Rotterdam, and Amsterdam. It would appear, however, that the number of emigrants proceeding by way of continental ports is small, and does not tend to increase. The following is an account of the emigration by this route in 1885, the figures being inserted here for future reference, and in continuation of those of last year:—

Nationality.	Adults.				Children under 12 Years of Age and Infants.		Total.	
	Married.		Single.					
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
English	260	230	850	121	101	131	1,211	482
Scotch	15	15	27	28	7	8	49	51
Irish	34	18	54	29	18	18	106	65
Total British..	309	263	931	178	126	157	1,366	598
Foreigners	110	86	250	73	27	52	387	211
Grand total....	419	349	1,181	251	153	209	1,753	809

as 0·34 per cent. This is a low percentage, being only about half the rate in 1882 and 1883, though it is still considerably higher than in the years 1876-78, when the percentage ranged between 0·09 and 0·17 only. It remains to be seen whether these low percentages will again be touched before there is a fresh increase in the volume of emigration. The dependence above noticed of the fluctuations of emigration on the condition of the countries to which the emigrants go, has always to be kept in mind in such anticipations.

"In former reports a good deal of attention has been given to the question of the destination of emigrants, and to the proportion of Irish in the total emigration of persons of British and Irish origin only. In the present year there is nothing new to note, and the tables on these heads, which were formerly embodied in the report, have been included, with additions, among the general tables. It still remains true that the United States, one year with another, absorbs about 66 per cent. of the emigrants from the United Kingdom, and that the proportion of Irish emigration to the total, which, in some years when Irish emigration was large, exceeded 60 per cent., has again become about 30 per cent. only. On this last point, however, it should be understood that the Irish figures, in proportion to the population of Ireland itself, remain very large. Ireland has less than a seventh of the population of the United Kingdom, but the Irish emigration is nearly a third of the total, and the lowest proportion it has reached was about a fourth, in the years 1876-79.

"Reference has already been made to the fact that, one year with another, the passenger movement generally between the United Kingdom and places out of Europe, apart from what is properly called emigration and immigration, is on the increase. This is shown by the following small table, continued from former reports, showing the numbers of cabin and steerage passengers respectively:—

Numbers of Cabin and Steerage Passengers leaving the United Kingdom for Places out of Europe, in each of the Years from 1876 *to* 1885 *inclusive.*

Years.	Cabin Passengers.	Steerage Passengers.	Total.
1876	41,900	96,322	138,222
'77	37,147	82,824	119,971
'78	43,168	104,495	147,663
'79	43,928	173,235	217,163
'80	50,734	281,560	332,294
'81	54,270	338,244	392,514
'82	56,739	356,549	413,288
'83	55,840	341,317	397,157
'84	57,403	246,498	303,901
'85	51,428	212,957	264,385

"Thus the average number of cabin passengers leaving the United Kingdom annually for places out of Europe in the five

years 1876-80 was 43,375, but since 1880 the numbers have exceeded 50,000; the numbers last year, though they exhibit a considerable falling off from the maximum of 57,403 in 1884, being still no fewer than 51,428.

"In former reports attention was drawn at some length to certain differences in the character of English as distinguished from Irish emigration, particularly the larger proportion of female adult emigrants, and the smaller proportion of children, in the emigration, of Irish persons than in that of English or Scotch. This difference in the character of the emigration continues noticeable; and, without further comment, I have again to draw attention to the facts.

"The usual tables are added, showing in detail the sex, age, condition, and occupations of the emigrants; the numbers departing from each of the ports of the United Kingdom; the particulars of detention money recovered by emigration officers; and the amount of remittances by settlers in the United States, British North America, and other places, to friends at home; besides comparative tables, to which some additions have been made. With regard to remittances, however, I have again to repeat the remark of former reports, that the data are necessarily very incomplete."

II.—*The Migration from the Rural Districts and the Condition of the Agricultural Population in Germany. By* M. le Vicomte Rorric de Beaucaire. (Translated from the *Bulletin du Ministère de l'Agriculture de France*, February, 1886.)

The question of the depressed condition of agriculture is one that of late years has attracted very considerable attention generally, and commissions have been appointed in various countries to inquire into the causes to which it may be owing, and also whether these causes are of a permanent character, and how far they have been created, or can be remedied, by legislation. In France the present depression is attributed in some degree to the migrations from the rural districts, a movement which year by year becomes more pronounced. The direct result of this movement is a dearth of manual labour, from which the already heavily taxed farmer suffers in having to pay higher wages in order to retain the services of those labourers who are indispensable to him for the proper cultivation of his land.

It will be the object of the present review not only to show to what extent a similar migration is taking place in Germany, and to study the causes that have led to it and the consequences which have resulted from this movement of the population, but also to inquire into the measures that are adopted or proposed to be adopted in this country to check it. The most recent statistical publications show very clearly that of late years there has been a constant stream of migration from the rural districts of Germany,

and taking the terms *rural* and *urban* population in their generally accepted sense to mean, in the former case the inhabitants of a given locality whose aggregate numbers do not amount to 2,000, and in the latter those in excess of that number, we arrive at the following figures as representing the actual number of each class in Germany at the date of the last three census enumerations :—

Years.	Urban Population.		Rural Population.	
	Total.	Proportion per Cent. of Total Population.	Total.	Proportion per Cent. of Total Population.
1871	14,790,798	36·10	26,219,352	63·90
'75	16,663,889	39·00	26,063,483	61·00
'80	18,750,530	41·40	26,513,531	58·60

We will now divide the towns into different categories, as follows : large towns having an aggregate population of 100,000 inhabitants or more; average towns with a population of from 20,000 to 100,000; small towns, having from 5,000 to 20,000 inhabitants, and finally, large villages with a population not exceeding 5,000. The subjoined tabular statement will show the distribution of the population at the dates of the last three census enumerations :—

	1871.			1875.			1880.		
	Number.	Population.		Number.	Population.		Number.	Population.	
		Total.	Proportion per Cent. of Total Population.		Total.	Proportion per Cent. of Total Population.		Total.	Proportion per Cent. of Total Population.
Large towns	8	1,968,537	4·83	12	2,665,914	6·26	14	3,273,144	7·24
Average „	75	3,147,272	7·68	88	3,487,857	8·16	102	4,027,085	8·90
Small „	529	4,588,364	11·19	591	5,130,044	11·99	641	5,671,325	12·54
Large villages....	1,716	5,086,625	12·40	1,837	5,380,074	12·59	1,950	5,778,976	12·72

The same phenomena are observable in the efflux from the agricultural districts in Germany as in France, and in both countries the current is directed to the large towns, but as regards the former country, it cannot be said that the chief industrial centres are exclusively confined to the towns. In the Rhenish provinces for example, in Saxony and Westphalia, whole districts entirely beyond urban limits are devoted to various industrial pursuits. Of recent years, however, in Germany, important urban centres have become more and more the seats of industrial production. It may therefore be taken generally that it is principally the industry and commerce of Germany that have benefited at the expense of her agriculture.

To account for the constant and steady flow of migration from the rural to the urban districts many causes are assigned, among the principal being the enormous development that of recent years has taken place in every description of industrial production; the conditions of material ease and well-being which have considerably improved; the increase in public wealth; the attempt at centralisation, which has resulted in establishing the city of Berlin as the new capital of Europe; the increase of the standing army, which has had the effect of making known to a vast number of young soldiers, drawn chiefly from the peasant classes, the pleasures of a town life, and finally, the impetus given in recent years to every description of German industry.

German agriculture has also had to deplore the loss of thousands of labourers who annually leave the country to seek fresh homes beyond the seas, and who for the most part come from the rural districts. A reference to the following statement will show the extent of the German trans-oceanic emigration in each of the years comprised within the period 1871 to 1881:—

Years.	Total Number of Emigrants.
1871	75,912
'72	125,650
'73	103,638
'74	45,112
'75	30,773
'76	28,368
'77	21,964
'78	24,217
'79	33,327
'80	106,190
'81	210,547

Taking the whole of this period, it will be found that there has been a loss to the country by emigration of 765,698 persons in eleven years, or an annual average of 69,608, while the average annual increase of the population in Germany is 493,360 persons, or a proportion of 1·26 per cent. The loss arising from emigration alone was estimated in 1881 to be in the proportion of 0·57 per cent. for the whole of the empire, and these figures in themselves will be sufficient to convey an idea of the gaps that for some years have been created in the ranks of the German agricultural labourers. In two provinces, Prussia and Pomerania, the loss sustained in 1881 by emigration alone rose to 2·7 per cent. of the total population.

The question has frequently arisen whether the constant stream of migration from the rural districts to the towns has resulted in depriving agriculture of the labour which is indispensable to it, and also as to the extent to which it has contributed to raise the wages of the agricultural labourer; but, unfortunately, on this point there is an absence of official data. A publication, however, entitled *Bäuerliche Zustände in Deutschland*, which has recently been issued, enables us to form an approximately near estimate of the condition of the agricultural interests as regards the dearth or

otherwise of labour, and the average rates of wages paid throughout the greater part of the empire. It is from this work that the following particulars have been extracted.

In the Grand Duchy of Baden it appears that there is a surplus population, and the average rate of wages paid to a day labourer varies from 1*s.* 2*d.* to 2*s.* a day, and in addition it is estimated that the daily cost of boarding a labourer amounts to about 1*s.* In Bavaria there is a sufficiency of labour, more especially in the immediate neighbourhood of Munich, and the rates of wages are as follows: for men, 1*s.* per day and two quarts of beer in summer, and 6*d.* in the winter; for women, 8*d.* a day in summer, and 6*d.* in winter. In Brandenbourg wages are comparatively high, men being paid at the rate of 1*s.* to 1*s.* 6*d.* a day, and women 1*s.*

In Brunswick the condition of the agricultural industries appears to be fairly satisfactory. The population increases but slowly, and emigration is only very slightly resorted to, while the impetus which of recent years has been given to agriculture, necessitates the employment of large numbers of labourers, more particularly in those districts devoted to the cultivation of the beetroot. In Coblenz the population also increases very slowly and gradually, and in summer the supply of agricultural labour is far in excess of the demand. In winter the peasants, having nothing to occupy them in cultivation, devote their attention to various home industries. In Lower Franconia there is an excess of labour; the birth-rate is low, and there is a steady current of emigration. The average rate of wages has fallen during the last ten years, and at the present time male farm servants gain about 6*l.* 10*s.* a year, and females about 5*l.*; a day labourer in summer earns from 1*s.* 6*d.* to 1*s.* 7*d.* a day, and in winter from 1*s.* 2*d.* to 1*s.* 3*d.*; engaged by the year, they are paid at the rate of 10*d.* per day for men, and 8*d.* for women.

In Upper Franconia the population is sufficiently numerous to provide the necessary labour required for agricultural purposes, and it increases in a very slow degree. In winter work is difficult to obtain, and wages are low; but at harvest time work is plentiful, and wages are high. The average daily earnings of the men are from 8*d.* to 1*s.*, with beer and food five times a week. In Middle Franconia wages have risen very considerably during the last twenty years, and the population increases very rapidly. In Lorraine men labourers receive from 20*l.* to 25*l.*, and women from 10*l.* to 15*l.* a year, the daily wages being in the case of the former at the rate of from 1*s.* 6*d.* to 2*s.* 6*d.*, and in the latter from 1*s.* 3*d.* to 1*s.* 7*d.*; and these wages are nearly doubled during the time of harvest. The population augments but slowly, and the average family consists of the husband, wife, and two children. In the Grand Duchy of Mecklenburg taxation is low, and agriculture is not so heavily burdened as in other parts of Germany. The current of emigration, however, is very strong, and ten years ago complaint was made of the great dearth of labour; but at the present time these complaints have almost ceased. Men servants receive yearly wages at the rate of from 6*l.* 15*s.* to 7*l.* 10*s.*, and women from 5*l.* to 6*l.*, and when engaged by the day they are paid

at the rate of about 1*s.* 7*d.*, with board, in the summer, and about 1*s.* 2*d.* in the winter.

In Oldenburg the population increases rapidly, and there is a strong current of emigration. The conditions of domestic service are good, and men's yearly wages average from 7*l.* 10*s.* to 15*l.*, and women's from 3*l.* 15*s.* to 10*l.* Coming next to Western Prussia, we find that the population increases rapidly, and wages have almost doubled during the last twenty years. In Eastern Prussia the density of the population is at the rate of 132·1 persons to the square mile, and the birth-rate is comparatively high. For example, while the increase in the total Prussian population from 1820 to 1880 was in the proportion of about 75·2 per cent., in Eastern Prussia the increase was at the rate of 103·5 per cent. The supply of labourers is always sufficient, and the practice followed is to give lodgings and the free use of a field, with the right of pasturage for one or two cows, and a certain quantity of wheat, rye, and potatoes in exchange for field labour. It is the exception for money wages to be paid. Consequent upon the excessive birth-rate, the number of hands is always on the increase, and many small farmers who have been unsuccessful in their farms are content to work as day labourers. In the Duchy of Saxe Meiningen the agricultural population does not increase very rapidly, and there is a constant stream of migration from the rural districts to the towns. During the last few years, however, complaints as to the scarcity of agricultural labourers have been less and less frequent. In Prussian Saxony agriculture has for some time been in a very flourishing condition, although at the present moment it is affected by the crisis which has overtaken the sugar industry. In this province a large number of beetroot sugar factories have been established during the last thirty years, and they provide employment not only for vast numbers of the inhabitants, but for migrants from Posen, the Black Forest, and other districts.

In the kingdom of Saxony the population increases rapidly. From 1864 to 1881 the urban population had increased by 334,448 persons (37·66 per cent.), while in the rural districts there was an augmentation of 301,165 inhabitants (20·78 per cent.). The average density of the population is established at the rate of 513 inhabitants to the square mile. Almost the whole of the rural population are occupied in the fields during the harvest, and in the winter they devote themselves to various small industries, chiefly engaged in at their homes. The following is a statement of the average daily wages paid in Saxony, according to returns obtained from ten of the principal rural districts :—

	With Board.		Without Board.	
	Minimum.	Maximum.	Minimum.	Maximum.
	d.	*s. d.*	*s. d.*	*s. d.*
Men	6	1 1	1 2	1 11
Women.....	5	– 8	– 9	1 4
Children	3	– 7	– 6	– 8

In Saxe Weimar of late years there has been a rapid increase of the population, so much so that at the present time the supply of labourers is greatly in excess of the demand. At the time of the harvest it is the custom for the reapers to receive as their wages every thirteenth sheaf. In the regency of Trèves, the peasants are mostly crippled with debt, and there is an excessive subdivision of land. The majority of small owners are obliged to work in the fields for the benefit of others, and at comparatively low wages. The rate of pay for men per day during the harvest time is about 1*s.*, but in winter it is not only considerably lower than this, but work is frequently difficult to obtain. This condition of affairs has led to a steady current of migration to the towns and of emigration beyond the seas. The following tabular statement will show a comparison of the annual rate of wages paid in this district to agricultural labourers before the year 1855, and at the present time:—

	Rates of Wages. By the Year.	
	Before 1855.	Present Time.
	£ *s.* £ *s.*	£ *s.* £ *s.*
Men	6 – to 9 –	12 – to 18 –
Women	2 14 „ 3 12	6 – „ 7 10

In Westphalia wages have fallen considerably of late years, and during the winter months there is practically no work to do. A system which up to the present has been found very successful in its working, is for the farmers and large landed proprietors to let at a low rental a few acres of land to the Westphalian peasant, who in return bind themselves to work for their landlords at the rate of about 1*s.* per day. In Wiesbaden labour is plentiful, and the rate of wages paid by the farmers is as follows: Men per day with food from 1*s.* to 1*s.* 6*d.*, without food 1*s.* 6*d.* to 2*s.* Women with food 6*d.* to 8*d.*, and without food 1*s.* to 1*s.* 3*d.* In Wurtemburg, the population increases but slowly, and the agricultural labourer receives on an average from 1*s.* 3*d.* to 1*s.* 5*d.* per day of eight hours.

It will be seen from the above that the condition of the German agricultural labourer varies very considerably with the district, and it will be found that in places which are almost contiguous a perceptible difference exists in the rate of wages paid. Up to the present it would appear that only some few districts of a restricted area, notably the environs of Stralsund in Pomerania, have had any reason to complain of an insufficiency of hands necessary for the proper cultivation of the soil, and the dearth is attributed in great measure to emigration.

In the kingdom of Saxony and in the Prussian province of that name, and in the Duchy of Brunswick the cultivation of the beetroot on a very extensive scale, has introduced considerable modifications in the system of agriculture hitherto followed. During eight months of the year there is a constant demand for a large

number of workmen to assist in the sowing of the beet, in weeding, hoeing, and harvesting, and to assist in the work of the factories. The population of these districts is not in itself sufficient to furnish all the labour required, and this it may be observed is not the result of any excessive migration, as we find from the census returns that Saxony has benefited to the extent of about 4 per cent., and Brunswick about 3·5 per cent. at the expense of the rest of the Empire. The reason rather lies in the fact that production of late years has become so intense, that these particular districts have become the very centre of industrial as well as agricultural production; and wages have now reached such a point that they are as high as those paid in many factories and workshops. The natural result is an influx in the summer of labourers and their families from Russian Poland and the provinces of Western and Eastern Prussia, who return to their homes in winter.

It must be borne in mind that the demands which from time to time are made upon the neighbouring districts, and even from abroad for additional assistance, do not necessarily point to a depopulation of the rural districts. In some cases they may be occasioned by a complete revolution in the system of cultivation, in others from the superior qualifications of strangers for a particular description of work.

With the few exceptions to which we have referred, each province is able to provide all the labour required for the proper cultivation of the soil, and the rates of wages although they have increased during the course of the last twenty years, cannot be said to be ruinous to the landowners and farmers. There is abundant evidence in support of this to be found in the result of the inquiries which have recently been made into the condition of the agricultural industries generally. The reports of the various commissions all tend to show that the increase in the price of labour is but a very unimportant factor in the depression which has weighed with such force upon the agricultural industries.

Comparing the two countries France and Germany, it will be found that there are many points of similarity in the movement of migration from the rural to the urban districts, which has of late years become so pronounced. The German peasant equally with his French neighbour manifests a decided tendency to become a dweller in cities, and this being the case, the question arises why in these two countries causes so apparently identical should produce results so widely dissimilar. The solution of this problem is apparently simple, as it may be urged that the German population has a density of 217 inhabitants to the square mile, while in France it is only 184; and the conclusion might be drawn that the population being more dense, the productive forces would be intensified in Germany, and therefore labour should be more abundant and cheaper. If we look more closely into the facts it will be found that this process of reasoning is an erroneous one.

In France according to the census returns of 1881 the rural population amounted to 24,575,506, and the urban population to 13,096,542, that is to say out of every hundred inhabitants 65·24 belonged to the country and only 34·76 to the towns. In Germany

we find according to the census returns of 1880, that the rural population amounted to 26,513,531, and the urban to 18,750,530, in other words 41 per cent. belonged to the town, and 58·61 to the country. The proportion of the rural population is therefore greater in France than in Germany. The returns showing the numbers of the population classified according to occupations give a more decided advantage to France, for they establish the fact that at the date of the last census enumeration 18,249,209 persons, or a proportion of 50 per cent., were engaged in the agricultural industries, while in Germany the numbers did not amount to more than 19,223,246, or a proportion of 42 per cent.

Taking then the returns of the numbers of the rural population and comparing them with the area of the two countries we arrive at the following results:—

	Rural Population.	Superficies in Square Miles.	Proportion to the Square Mile.
France.....	24,575,506	204,029	120·2
Germany.....	26,513,531	208,641	127·7

We find then on the one hand that the proportion of the agricultural population is greater in France than in Germany, and on the other, that in spite of the fact that in the latter country generally there are 33 inhabitants to the square mile more than in France, the density of the population inhabiting the rural districts is only 7·5 per square mile greater. This slight difference therefore in favour of Germany is not sufficient in itself to effect any radical change in the economic conditions of the two countries, and Germany is not materially affected by the scarcity of agricultural labour.

The reason may perhaps be found in the fecundity of the German race. While in France the rural population, which in 1876 amounted to 24,928,392, had fallen off in 1881 to 24,575,506, a decrease of 1·4 per cent., Germany has gone on steadily increasing. According to the latest returns, the annual increase of the rural population in Germany is in the ratio of 0·64 per cent., which compares very favourably with the proportion representing the total increase of the entire French population, which has been established in the ratio of 0·41 per cent. We find ourselves then confronted with two widely differing phenomena: in Germany an annual augmentation of the rural population to the extent of 0·64 per cent.; in France an annual falling off of 0·28 per cent.; on the one side great gaps being created, on the other, vast numbers always increasing and bringing in their train fresh requirements to satisfy. These requirements engender the necessity for work; the demand is greater, and wages are lower.

If it be true that the fruitfulness of the German race is an element of power and wealth not only to the agricultural classes, but to the country generally, it may not be uninteresting to glance briefly at the reasons which have led to the present superiority of the German over the French race.

France at certain periods also had a surplus population overflowing her frontiers, and Gourville, in his memoirs, relates how in the time of Louis XIV the Spanish frontier towns were filled with Frenchmen willing to undertake the meanest and most laborious work, which the Spaniards themselves were either too proud or too indolent to accept. It is to be regretted that France has lost this power of expansion which Germany possesses in such a marked degree. It cannot be because the climate is better in one country than in the other; neither is it because the German has a greater preference for a country life, which is so eminently conducive to fruitfulness. Two centuries ago the marked difference in the relative fecundity of the two races, which is so noticeable at the present day was practically non-existent. It may perhaps be that the shorter term of military service in Germany tends in some degree to promote the contraction of early marriages; however that may be, there are, according to the opinions generally expressed in Germany, other causes of a moral and economic nature which play a very important part in this question.

It is said that the "selfish calculations of distant consequences which limit the increase of families in France are unknown to the rural population of Germany. The principles of religion and morality which in country districts are strictly adhered to, have conduced to the preservation in many places of manners and customs almost patriarchal; and the system of educating the masses, and the teachings not confined only to the schools, but of literature and the arts, which have caused the rearing of a large family to be regarded as a proud and honourable duty, may all have contributed to foster among the German people the desire to increase and multiply."

As a general rule the German peasant farmer is heavily embarrassed and can with difficulty manage to pay for the labour he requires to assist in cultivating his land. What then is easier for him than to obtain it from his own children? Again, in the vast plains of Northern Germany, where the soil is but slightly subdivided, and very little inducement is held out to the peasant to become possessed of a tract of sandy and sterile land, what is more natural than that a man should desire to be surrounded by his own family to assist in cultivating in common a farm too poor to admit of any subdivision? Another reason may be traced to the political organisation of the country. Established on a firm and lasting basis, and respected by all, it assures to all the fruits of their labours, and is not only in itself a guarantee for the future, but is a direct encouragement to reproduction, especially to the more prosperous classes of the community, who are secure in the belief that their descendants will benefit by the same social advantages that they themselves enjoy.

It is undoubtedly the fact that a greater necessity for work exists in Germany than in France, more particularly among that class from which agricultural labourers are chiefly drawn; and although the necessities and requirements of life are more easily satisfied in the former country, families being larger than in France, and the annual income smaller, the labourer finds himself driven

to accept work at the lowest price in order to provide for his wants and to enable him to support those who may be dependent upon him.

The system which prevails throughout the greater part of the Empire of transmitting property to the eldest son, and in some cases even to the youngest, and which hands over to one child almost the whole of the paternal wealth, contributes in a very marked degree to swell the numbers of those who are compelled to work as day labourers to provide themselves with the means of existence; and again in the sandy plains of North Germany the owner of a small plot of land is in a very different position to the small landed proprietor in France, and can never aspire to the independence enjoyed by the latter. The density of the population being about the same in each country, in Germany the number of landowners is considerably smaller, and the result is a large number of persons eager to work even for low wages. Finally, throughout the whole of Germany, and more particularly in the Rhine Province, in Westphalia, and in districts where there is an extensive subdivision of land, there exists an absolute necessity for the rural population to work.

The German peasant as a rule is crippled with debts, and in almost every village the farmer is in the toils of the money lender. This class, which is practically unknown in the rural districts of France, is largely represented throughout the whole of Germany, and the peasant falls an easy victim to his wiles. On this point it is also to be regretted that there is an absence of statistical data, but there can be no question as to the vast numbers of the rural population who are annually ruined by usurers, reduced to the rank of day labourers, and even then forced to pay into the hands of their oppressors a portion of their hard earned wages. Some emigrate to America, but many remain and help to constitute an agricultural proletariat, whose services are utilised in tilling and cultivating the soil for the advantage of others.

Certain measures adopted by the legislature under the influence of the protectionist ideas which of late years have gained so firm a footing in Germany, have also resulted in stimulating the desire for work among the rural population. The cultivation of tobacco and of the sugar beet, the latter of which is encouraged by a bounty on the exportation of sugar, attracts many to the districts in which these industries are carried on, and although their development has undoubtedly had the effect of raising the rates of wages, on the other hand they have been the means of providing more work for the labouring classes, and of promoting the well-being of those employed in them. Certainly at the present day a crisis is menacing the sugar industries, and it is probable that a considerable reduction will soon be made in the number of workmen engaged in the cultivation of the beet and in the work of the factories, and this will not be without its influence in helping to keep down the price of labour in Germany. Social conditions have also much to do in attaching the peasant to the soil, and in preventing him from qualifying himself for better and more lucrative employment than working in the fields; there is at the

present day little or no chance for him to rise beyond the condition of life in which he was born.

As regards the relations existing between the master who supplies the work and the peasant who performs it, they are generally cordial, and from time immemorial these two classes have never ceased to live side by side united by the closest ties, the peasant freely and uncomplainingly submitting to the yoke of his master, and the latter doing all in his power to protect the interests and improve the condition of his dependents. In cases where the lord of the manor is a rich man, an additional bond of sympathy is formed by the establishment of hospitals, schools, and homes, endowed by him and erected upon his property for the benefit of the poorer inhabitants of his district. There is always a home for the remainder of their days for those who have laboured in his service, and have become too old or too infirm to continue in it. To many of the rich proprietors all the peasants on their property are personally known, and in cases of want and ailments their necessities are provided for.

There are many reasons therefore to account for the fact of the rates of wages paid in the agricultural districts not having increased to such an extent in Germany as they appear to have done of late years in France. Among others may be mentioned the constantly increasing population, by which the gaps created by the migration from the rural to the urban districts are speedily filled up, the necessity for work imposed upon the peasant by the constitution of society, large families, the nature of the soil, greater simplicity of manners, fewer requirements to satisfy, and finally the cordial relations existing between the landed proprietor and the inhabitants of the rural districts.

Coming next to the question of the measures that have been adopted, or which have been suggested with a view to the retention of the peasant in the rural districts, and the improvement generally of the condition of the agricultural industries in Germany, we may commence by observing that if the country as yet has not suffered to any serious extent from depression, the movement which has taken place among the population of the agricultural districts is decidedly a foreshadowing of evil. In some places wages have increased, and a series of indifferent harvests in 1871, 1872, 1873, 1874, 1875, 1876, 1879, and 1880, have not been without their effect upon the agricultural industries. On all sides farmers have been bitterly complaining, and the State has shown a disposition to come to their assistance. This took a practical form in 1881, in the appointment of a Commission to inquire into the condition of the Prussian peasants, and at the present time there exists a wide-spread feeling of sympathy for the agricultural classes throughout the whole of the empire.

With the object of rendering assistance to the Government in the task they had undertaken, a considerable number of influential men devoted themselves to the special study of the agricultural question, with the result that powerful associations were formed among the peasants of Westphalia, Silesia, Rhenish Prussia, and Bavaria, several of which had their own particular organs of the

press. Other associations have been formed, such for example as the *Verein für Sozial Politik*, which has issued a vast number of publications dealing with the various social questions now pending in Germany, and which brought out the valuable work entitled *Bäuerliche Zustände in Deutschland*, treating solely of the condition of the agricultural industries of Germany, and from which we have extracted the particulars given above relating to the rates of wages paid in the agricultural districts. The direct result of the formation of these associations has been to attract attention to the important question of the rates of wages paid in the agricultural districts, the movement of migration from the country to the towns, and the amelioration of the condition of the peasants. The steps that have been taken in Germany to improve the condition of the agricultural population may be briefly summarised as follows:—

In some cases where the desertion of the rural districts had been particularly marked, the Prussian Government attempted a remedy from which the most successful results were anticipated. At the time when M. Camphausen was Minister of Finance, certain crown lands, cut up into small lots in order to afford greater facilities for purchase by the peasants, were offered for sale in Pomerania, but owing to the fact that either the selling price was fixed at too high a rate, or that the rural population were not possessed of sufficient capital to effect the purchase, the results anticipated were far from being realised, and the scheme was practically a failure. In Eastern Prussia similar attempts were made to place the peasants in possession of their own land, but with the result only of attracting from Russian Poland vast numbers of Poles, whose influx caused the greatest discontent among the original inhabitants of the districts, and the result of these two attempts to increase the number of peasant proprietors is not such as to encourage the Government to repeat the experiment.

As regards emigration the State cannot directly interfere to prevent it, all it can do is to endeavour to stem the current, and to this end severe penalties are enforced against any persons who may be guilty of influencing emigration by misrepresentation. Emigration offices are also under the direct supervision of the police, and finally any German who may resort to emigration with the object of avoiding military service is considered as a deserter, and treated accordingly. These measures, however, have not been successful in entirely checking the movement, and it is acknowledged that the peasant cannot be retained in the agricultural districts by force; moreover, the facilities of locomotion which exist at the present day render all attempts to check emigration futile.

Free gifts of land made by private individuals, the permission to cultivate small plots which is in some cases granted by landed proprietors to workmen and the families of the peasants in exchange for the personal services of the latter, and the creation of "agricultural colonies," have done more to attach the peasant to the soil than all the attempts which have hitherto been made by the State. There is unfortunately an absence of statistical data bearing upon the question of the extent of land privately granted in this

manner, but there can be no doubt as to the efficacy of this plan, and the success that has attended it. The Government finding itself powerless to directly prevent the migrations that are taking place from the country to the towns, endeavours to improve the condition of the peasant, and by this means attach him to the rural districts.

The system of export bounties on sugar established in 1869 and 1883, the imposition of protective duties on cereals and on the chief agricultural products in 1879, and the recent increase in these duties, may be taken as so many concessions made to the fears entertained by German agriculturists of foreign competition. These measures were adopted with the object of rendering land cultivation more remunerative, and it is undoubtedly the fact that the majority of agricultural labourers, who, more especially in Prussia, are paid their wages in kind, will feel much less than the workman in the towns, who is obliged to pay for all the necessaries of life, the increase in the price of provisions which must inevitably result from them.

The modification of the law of direct taxation which is now imminent, will very favourably affect the poorer classes of the rural population, and particularly the small proprietors, and the same may be said of the projected reduction of the communal taxes. It was decreed by a law recently passed by the Prussian Chambers that a part of the receipts derivable from the customs duties on the products of the soil should be paid into the communal exchequer. Finally the agriculturists throughout the country are unanimous in demanding the adoption of a measure which they maintain would have the effect of removing all the grievances of which they now so bitterly complain. This consists in the imposition of taxes on securities and on all stock exchange operations. The revenue derivable from this system of taxation would in their opinion relieve the farmer of a great burden, and remove it from his shoulders to those of the occupants of towns, to the men of independent incomes, financiers, and others who have hitherto been more leniently dealt with in the matter of taxation than the landed proprietors, owing to the fact that by the very nature of their property they can more easily escape assessment. Various measures dealing with the taxation of the incomes of the wage-earning classes, and of those derivable from capital, were introduced into the Prussian Chamber by Prince Bismarck in 1882 and 1883, but they did not receive the approval of the majority of the members. Very recently, however, an Act has been passed by the German legislature authorising the imposition of a tax on all stock exchange operations (*Börsen Steuer*), a measure which has received the warm approval of the agricultural party throughout the empire.

These, together with the creation two years ago of the *Landwirthschaftsrath* or Superior Council of Agriculture, have been the measures, of a general character, adopted by the legislature with a view to the improvement of the condition of the agricultural industries, and particular attention has also been directed by the Government to the question of agricultural credits. In Germany

the estates are generally encumbered to an extent unknown in France. The usurer flourishes in every village and hamlet, and the question of the best method of putting the peasant on his guard, and protecting him against the wiles of the low-class money lenders, has for some time not only occupied the attention of the Government, but of private individuals who have the interests of the agriculturists at heart. It has been suggested by some that the usurer should be directly attacked, and by others that credit institutions under State patronage should be established throughout the country. Others again proposed that the land should be freed from the debt which is encumbering it, and that the State should take up all the mortgages at present existing on rural properties in Germany.

For some considerable time past large corporate institutions known as *Landschaften* have been established in different districts of Germany, whose business consists in dealing in "land credits," lending money on real estate, and buying or selling mortgages. A mortgage bank is also frequently connected with these institutions. It may be said that these establishments have contributed in some degree to attach the peasant to the soil by increasing the circulation of the capital by which he benefits, and by rendering facilities to the farmers for the payment of the wages due to the labourers they employ. But the institutions themselves were more particularly established for the purpose of enabling large landed proprietors to obtain the necessary funds for improving and developing their land, and in exceptional cases of advancing money to the peasants, but there are generally so many formalities to be complied with, and the amounts advanced are usually so small, that the peasant as a rule goes to the money lender in preference.

There are three other descriptions of credit institutions at the service of agriculturists in Germany—the *Hypotheken Banken*, *Provinzial Hülfskassen*, and the *Landes Kultur Banken*. The first of these may be considered as private institutions, and the *Provinzial Hülfskassen*, whose establishment dates from a very remote period, lends money on easy terms of gradual repayment for the establishment of public institutions, the payment of municipal debts, and the development of industrial works. These institutions are to a certain extent under the jurisdiction of the State, by whom their statutes are revised, and for many years the German Government have been desirous of extending their benefits to the agricultural industries of the country. In the Rhine Province the savings bank statutes, promulgated in 1882 and revised in 1885, extend the sphere of usefulness of these institutions to every part of the province where assistance may be required. According to these statutes, one of the principal objects of the association is to lend money for the purpose of "assisting families to retain their land, and also of encouraging agricultural credit."

The *Landes Kultur Banken* were established by the law of the 13th of May, 1879, and are provincial banks ready to lend money on mortgage to the agriculturists in order to assist them in improving their land, and in exceptional cases also to the peasants. The latter however very seldom derive much benefit from these institutions.

Another institution, less powerful it is true, but one which renders considerable assistance to the small proprietor in advancing the modest sums of which he may stand in need, is the bank established by Herr Raiffeisen, branches of which are to be found in many districts of Germany. The help given to many small industries by the co-operative associations organised on the principle of the Schulze Delitzsch are well known, and the Raiffeisen banks are worked on almost identical principles, the only difference being that the dealings of the latter are almost exclusively confined to the agricultural classes. The object of the establishment of these institutions was to enable their members to obtain small money advances on the common security of the whole of the members, and to provide safe investments for capital which would otherwise remain idle. The president and committee of management who are members of the association are elected at a general meeting, and hold office for four years, when they are eligible for re-election. The power of accepting or rejecting new members is vested in these officials, and all members when duly elected are entitled to take part in the proceedings of the society.

During the last fifteen years the Raiffeisen banks have established branches in many districts of Germany beyond the limits of Rhineland, and from inquiries that have recently been made into the working of these institutions, it appears that in the year 1883, the total number of members amounted to 15,000, while the actual number of banks open in Germany was 198, distributed as follows: 36 in the district of Cologne, 35 in Coblenz, 72 in lower Franconia, 12 in upper Franconia, 3 in middle Franconia, 25 in Cassel, 7 in Trèves, 2 in Aix la Chapelle, 2 in Wiesbaden, 2 in the Grand Duchy of Baden, 1 in the Duchy of Saxe-Weimar, and 1 in the province of Saxony.

Although the most excellent results have been derived from the establishment of these institutions, they have been subjected to much hostile criticism on the part of the Government, chiefly on the ground of the apparent insufficiency of their resources and doubt as to their ability to withstand any serious crisis. It is for this reason that they have hitherto received but little support from the State, whose efforts have been directed more to encouraging the establishment of savings banks throughout the empire. Institutions of this kind already exist, but they are unequally distributed over the country. In certain districts, notably in Pomerania, the two Prussias, and part of Silesia, they are comparatively unknown; while in other parts of Germany, particularly in Sleswig Holstein, they are both numerous and flourishing. The interest they pay on deposits is at the rate of 4 per cent., and as they are empowered by statute to advance money on mortgage, their operations in this direction are conducted on a very large scale. It was estimated by the Prussian Minister of Agriculture in 1883 that the total amount advanced by these banks on the security of landed property exceeded 24 millions sterling. Westphalia, Lusatia, Hanover, and Saxony, are, next to Sleswig Holstein, the districts in which these institutions have made the greatest progress, and in certain localities, such for example as Merzig near Trèves, where

they have only recently been established, their success has been particularly marked.

Some of these banks are municipal institutions, others are in the hands of private individuals or societies, and with a view to popularising them, and eventually bringing them immediately under the control of the State, the Imperial Government, following the example set by England, France, Belgium, and Italy, has recently introduced a measure into the Reichstag, having for its object the establishment of postal savings banks throughout the whole of the empire with the exception of Bavaria.

Another subject which has engaged the attention of the Government, and on which public opinion has of late been greatly exercised in Germany, is that of the organisation of societies of mutual help. The misery of the poorer classes, which is one of the consequences of the great increase in the population of Germany, and the spread of socialistic ideas which follows in its train, renders it necessary that steps should be taken by the Government to deal with the matter. The case of the industrial workmen has already been taken up by Parliament, which has passed and promulgated a law making insurance by industrial workmen compulsory, and it is greatly to be desired that the operation of this law should be extended to the agricultural labourer.

Charitable institutions for the benefit of the inhabitants of the rural districts exist throughout the whole of Germany with the exception of Bavaria, and by the law of the 6th June, 1870, the country is divided into a series of districts, known as *Landarmen-Verbände*, which are again subdivided into smaller sections, embracing as a rule a commune or several communes adjoining one another, and which are termed *Ortsarmen-Verbände*.

On the application of a person who is in want, the officer of the district in which he may be, is compelled to render him the assistance he requires, and if the applicant has his domicile in that particular district, it is this branch of the association which bears the expense of relieving him, if not, the expense falls upon the commune in which he has his domicile. To qualify himself for assistance in time of need, a person must either have been born in the district, or have lived there for an uninterrupted period of two years immediately after attaining his twenty-fourth birthday. He forfeits his rights by leaving the neighbourhood and settling elsewhere, or by an absence of two years immediately succeeding his twenty-fourth year. Foreigners, among whom are included Bavarians and the inhabitants of Alsace Lorraine, are eligible for assistance.

In addition to this system of organised relief, there are many private institutions in Germany devoted to the relief of the necessitous and deserving poor, and although there is an absence of official data relating to the actual number of such institutions, and of the cases assisted by them, there can be no question as to the value and importance of the work performed by them, while the most valuable assistance has been rendered to the agricultural labourer by the colonies which were founded some years ago in Westphalia, Silesia, Brandenburg, and many other parts of

Germany. These colonies were established for the purpose of providing occupation for those of the agricultural classes who by misfortune had been thrown out of work. The Government have always looked favourably upon their efforts, and they have been assisted not only by the municipal authorities, but by private individuals, who recognise their value. In 1884 it was stated that there were already eleven of these colonies, with nearly 600 homes for the aged and infirm, distributed throughout the different provinces of the empire.

In relieving the wants of the poor, but more particularly in encouraging and assisting the efforts of the peasant farmers, the various associations at present existing in Germany have played a very important part, and the system of association itself has been productive of the happiest results. For example, the union of German agriculturists, which was founded in 1883, and serves as a link connecting all the provincial or local associations, has done much excellent work. The creation of this union was coincident with the campaign undertaken some years since with the object of ameliorating the condition of the agricultural industries, and their programme is to represent and defend the interests of agriculture, to improve the legislation affecting all questions relating to agriculture, and to promote the establishment of associations generally throughout the country.

The German societies are of various kinds, and they differ very considerably in the objects with which they were founded. Some were established to supply funds to the agriculturists, such for example as the credit institutions to which we have referred above. Others again were created to facilitate the cultivation of the soil, and in this category may be included associations for the construction of dykes and for the drainage of land. The latter description of society has of late years rapidly developed in Germany, for we find that during the period 1881-83, 153 new societies were founded in Prussia, with a capital of over 400,000*l.*, with the object of draining the soil, their operations having extended over an area considerably exceeding 195,000 acres.

In the valley of the Aar, and in some parts of the Rhine provinces, a number of vine dressers' associations, composed of small vineyard proprietors, have been formed to cultivate in common small vineyards, which if worked singly would not yield a profit sufficiently large to cover the expenses of cultivation, vintage, and manufacture of wine. In one district alone there is an association of this description composed of 82 members. Numerous societies for insurance against fire, hail, cattle disease, &c., have been formed, and these institutions are more largely represented in the western than the eastern portion of the empire. In the Grand Duchy of Baden alone in 1880 there were 393 local societies for insurance against cattle disease, with an aggregate membership of 37,874, and having a capital of 700,000*l.*

Consumption associations, or unions for the purchase and sale of the necessaries of life have been very considerably developed of recent years, and their object is to procure to their members the advantage of a wholesale business so as to enable them to sell all

kinds of provisions at a cheap rate, and to accumulate from the proceeds a small dividend for the benefit of the members. They are to be found in large numbers in the Rhine provinces, in Hesse, and Saxony, and particularly in districts where there is an excessive subdivision of land. In Rhineland they are generally connected with the Raiffeisen institutions, and in many districts the members are not only enabled to purchase their provisions, but can also obtain oil cake, manure, seeds, salt, coals, and vine plants. It is a rule in this description of association for the articles which are bought to be submitted to examination by an expert, which is a guarantee to the members for the good quality of their purchases.

Other societies have been established for mutual assistance, and to provide against sickness and old age, but although many attempts have been made to popularise this description of association in the rural districts, owing to the inexperience and incompetence of those who have been responsible for their management, they have not hitherto been attended with any great measure of success. By an Act which was passed in April, 1876, the conditions under which these societies should be formed were clearly defined, and under the provisions of this law, farm labourers were not to be excluded from their benefits, but it was more particularly framed in the interests of the industrial classes. Among the many institutions of this nature which have been most successful in its working, and which have benefited alike the industrial and agricultural labourers, is the *Verein zur Förderung des Wohles der Arbeitenden Klassen*, established at Waldenbürg. One of the principal objects of this society was to provide gardens and small plots of land for the families of working men employed in the immediate neighbourhood, and 240 families of persons engaged in weaving, mining, manufacturing, and agricultural industries, have by its assistance been placed in possession of small allotments, which they may cultivate for their own use and profit.

Finally there are other associations which have been established with a view to promote discussion among the members on agricultural questions, or to enable them to take part in conferences on subjects of a technical character.

It is to be regretted that the State does not take a more active part in the promotion and encouragement of the societies that are to be met with throughout the whole of the country, but should be content to leave their initiative to private enterprise. At the same time it must be admitted that when their aim is really directed towards improving the condition of the agricultural industries, the State comes forward to lend its aid in furthering the objects of the association, either by recommending it in the agricultural colleges, or by granting subventions to assist in its formation; or again, by instructing its representatives, the *Landrath* or the President of the Regency, to use their influence in supporting it; and in exceptional cases the Government confers honorary distinctions on the presidents or founders of useful associations.

In order to improve the condition of the small farmers, it is above all necessary to alter the present system of subdividing the land, a system which prevails generally throughout Germany, but

more particularly in the west, where the proper cultivation of the soil is rendered practically impossible. According to returns made in 1870, the extent of cultivable land in the Rhine Province amounted to 10 million acres, distributed among 12 million allotments, and the average extent of each allotment is therefore less than one acre. In some parts of Germany the State has interfered to prevent the subdivision which so frequently follows on the death of a landed proprietor, but in others it is powerless. Legislative action in this matter was taken in Prussia under the laws of 1841, 1850, and 1860, and it was extended by the law of 1885 to the Rhenish Province, to the Principality of Hohenzollern, and the Regency of Hesse Cassel.

The highest authorities on matters affecting the agricultural interests are unanimous in demanding an alteration in the law of inheritance which at present promotes this excessive subdivision of land, and they are of opinion that the power which is now vested in some parts of the country in the hands of fathers of families to leave their property at will, should be extended to that portion of the Empire where the provisions of the Code Napoleon are still in force. There can be no diversity of opinion as to the manner in which legislative action in this direction would be received by the German people generally, as it would not only effect a long projected and long wished for unity of legislation, but it would also remove the last lingering traces of French subjugation.

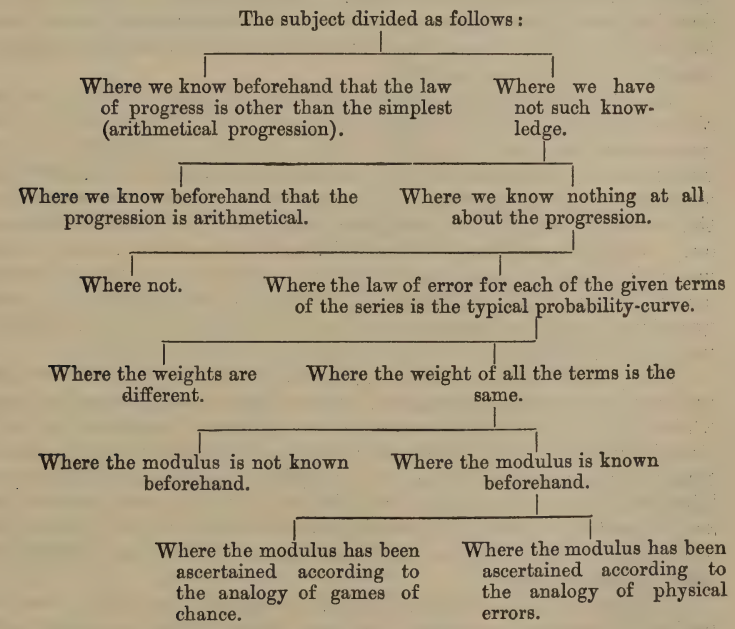
Before completing this review, we will call attention to a few of the suggestions for the amelioration of the position of agriculturists in Germany, and for their retention in the rural districts. Some are of opinion that it would be advisable to revert to the old system of granting leases in perpetuity, or for a long term of years, a system which would induce the peasant farmer to take as great an interest in the cultivation of his land as the large landed proprietor. Another suggestion is, that with a view to facilitate the proper cultivation of the soil in districts where the land is cut up into small holdings, the State should establish depôts where agricultural machinery containing the latest improvements could be hired by those who are not in a position to purchase it for themselves. Finally it appears to be a subject of general regret among those who are interested in matters most nearly affecting the welfare of the country, that so little detailed statistical data relating to the agricultural industries and the persons engaged in them should hitherto have been published in Germany. A reform in this direction is most urgently needed, and it is one which the authorities would do well to undertake, as an attentive study of the varying conditions of the rural population would necessarily lead to the application of remedies for many of the ills from which the agriculture of the country is now suffering.

III.—*Progressive Means.* *By* F. Y. Edgeworth, Esq., M.A., F.S.S.

[Read before Section F of the British Association, October, 1885.]

CONTENTS:

	PAGE
Formula for the Progress of a Series, and for the Probable Error of this determination	471
The Method applied, to Series consisting of the numbers of Vowels in Decades of ten pasteboard Letters drawn at random from a large and changing mass of such Letters	472
To the Ratios of Male to Female for Hertfordshire during a period of Twenty-one Years	473
To the series of Death-Rates for all England from 1838 to 1878.	474
The Value of the Method estimated	474
Appendix.	
Determination of the Probable Error for the inclination of a Line through several approximately given points	475
Verification that the proposed indication of change would not be given when the series is really unprogressive	475


The subject divided as follows:
Where we know beforehand that the law of progress is other than the simplest (arithmetical progression).
Where we have not such knowledge.
Where we know beforehand that the progression is arithmetical.
Where we know nothing at all about the progression.
Where not.
Where the law of error for each of the given terms of the series is the typical probability-curve.
Where the weights are different.
Where the weight of all the terms is the same.
Where the modulus is not known beforehand.
Where the modulus is known beforehand.
Where the modulus has been ascertained according to the analogy of games of chance.
Where the modulus has been ascertained according to the analogy of physical errors.

Let there be a given series of figures representing the quantities of one thing corresponding to the degrees of another thing: for instance, the rates of mortality for consecutive years, or the mean weights corresponding to successive mean heights. It is required to determine whether the given series indicates *progress*, increase, or decrease, and according to what law and with what evidence. Two cases present themselves: according as we have, or have

not, knowledge—whether *à priori* or derived from inspection of the observations themselves—that the law of progress is other than the simplest, that of Arithmetical Progression. The first case is illustrated as to its first alternative by the relation of mean weight to stature; as to the second alternative by the series of death-rates for England, 1838-83. It is proposed here only to discuss the simpler member of this and most of the other divisions—the right hand branches of our *tree*. The remarks applied to particular subdivisions may easily be generalised.

The second and simpler member of the division which has just been made is subdivided into the case where we know beforehand that the progression is arithmetical, and where we know nothing at all about the law of progress. The first case is exemplified by the following series:—

1, 2, 4, 2, 1, 0, 1, 0, 2, 1, 4, 5, 3, 4, 2, 2, 2, 2, 2, 3, 2, 4, 1, 4, 4, 5.

Out of a bag containing about 170 pasteboard letters, of which initially the vowels had to the consonants a ratio of about 2 : 15, ten letters were drawn at random. The number of vowels in this decade (one namely) was registered. Two consonants were then thrown out of the bag, two vowels taken in, and another decade drawn and registered as before.

The far more general case is where we know nothing at all about the law. In this case I submit it is agreeable* to the general and successful practice of the Calculus of Probabilities, in our complete ignorance of the true form of a function to assume that form which is simplest. And there is a peculiar propriety in the present case. For the proposed method is likely to be employed only when the progression is not obvious, is therefore small. And when the progression is small, almost any law is adequately represented by an *arithmetical* series. Suppose, for instance, the progression is really geometrical: a, $a\,(1\pm\delta)$, $a\,(1\pm\delta)^2$, &c. . δ being very small, the series reduces to a, $a \pm a\delta$, $a \pm 2a\delta$, &c.

The problem thus presented, to arrange a series of given terms† in an arithmetical progression, or the equivalent problem to draw a straight line through several points given by observation, may be subdivided according as the law of error to which each observation is subject is not, or is, of the *typical* sort, a *probability-curve*. The latter case is the most workable, and also the most general, in so far as the‡ *means* of several observations tend to conform to this curve (whatever be the law under which the individual observation ranges).

Taking still the simpler class, we may divide the case of probability-curves according as each datum does, or does not, rest upon observations of the same weight. The simplest case in statistics is where each term of our series is a mean of the same

* See the paper on *à priori probabilities* by the present writer, *Phil. Mag.*, September, 1884; also *Camb. Phil. Trans.*, 1885, p. 148.

† In social statistics these terms will usually be *means* of several observations.

‡ See "Methods of Statistics," Jubilee number of this *Journal*, pp. 186 and 187.

number of observations taken under similar conditions, *e.g.*, death-rates in a *stationary*, and not otherwise rapidly changing population.

The problem to which we have narrowed the subject presents two *quæsita*: what is the constant difference between the terms of the sought arithmetical progression; and what is the first (or any other assigned, *e.g.*, last or central) term? It is incorrect, as is* sometimes done, to put for one of these terms the corresponding given observation, the datum for the *quæsitum*. We have, so to speak, not only to determine the distance between the rungs of a ladder, but also the height of the first (or any other) rung from the ground.

Let us take the simplest case, where the number of given observations is odd, $2n + 1$, thus designated:—

$$x_{-n} \ldots . x_{-2}, x_{-1}, x_0, x_1, x_2 \ldots . . . x_n.$$

It is required to find x the $(n + 1)^{\text{th}}$ term of the sought arithmetical progression, and w the constant difference; such that the $[(n + 1) + r]^{\text{th}}$ term is $x + rw$, and the $[(n + 1) + r]^{\text{th}}$ term $x - rw$. The answer† to the first question is: put for x the arithmetical mean of all the given observations, *i.e.*,

$$\frac{x_{-n} + \&c. + x_{-1} + x_0 + x_1 + \&c. + x_n}{2n + 1}.\ddagger$$

The answer to the second question is—

$$w = \frac{(x_1 - x_{-1}) + 2(x_2 - x_{-2}) + 3(x_3 - x_{-3}) + \&c. + n(x_n - x_{-n}).}{2(1^2 + 2^2 + 3^2 + \&c. + n^2)}$$

The problem of drawing a straight line for which several points are approximately given, is too familiar to be dwelt on here. A less threadbare subject is the *probable error* of the determined inclination; in other words of our w. The probable error of w is, I submit, $0{\cdot}475 \times \frac{c}{\sqrt{2(1^2 + 2^2 + \&c. + n^2)}}$; where $0{\cdot}475$ is the usual constant by which the *modulus* must be multiplied in order to find the *probable error*, and c is the modulus for the probability-curve under which each of the data, each x, is supposed to range. How then are we to find this constant? Two cases may be distinguished: when the modulus is given prior to the observations, and when it has to be elicited from the observations themselves. The former case is again subdivided according as the previous determination follows the analogy of games of chance, or errors-of-observation;§ is in Professor Lexis's phrase "combinatorial," or "physical." The first alternative is fairly well exemplified by the

* *E.g.*, even by Hain.

† See Appendix.

‡ When the number of observations is even, this expression (omitting x_0) is still available as the mean of the sought progression.

§ See "Methods of Statistics," p. 192.

5	3	3	3	5	3
4	6	4	5	5	5
−1	3	1	2	0	2

accompanying series; which was thus formed: Out of a mass of some 180 pasteboard letters made up of vowels and consonants, in about equal numbers (initially), ten letters were drawn at random, and the number of vowels in the decade noted. Two vowels then were taken from the mass, two consonants added, and so on. The series is represented as starting with 4, and wheeling to the left in the middle of its course, like the racers in an ancient stadium. If we take differences according to the rule, the value of $(-w)$ the decrease per decade will be—

$$\frac{1\times2+2\times0+3\times2+4\times1+5\times3-1\times6}{2(1^2+2^2+\&c.+6^2)}=\frac{21}{182}.$$

This is the progression per decade. To find the number of vowels taken from the mass at each trial, we have the proportion $10 : 180 :: \frac{21}{182} : 2{\cdot}1$ nearly. *Two* is the nearest integer. *Q.E.D.*

But the determination of probable error could not I think be relied on in this case, as the number of vowels in a decade drawn at random cannot with proper approximation be regarded as ranging under a probability-curve.

The latter point is better exemplified by the following series, in which each of the terms consists of the sum of twenty-four such observations as were described in the preceding example. But in this case the total number of letters was (to within one or two at least) 230, and the number of vowels 69; a number not changed—intentionally at least or considerably, for one or two letters seem to have been lost in the course of the trials.

72	73	67	70	67	84
72	74	75	69	65	66
0	−1	−8	+1	+2	+22

$$Sr\,[x_r - x_{-r}] = -8$$
$$2Sr^2 = 182$$
$$w = \frac{-8}{182} = -0{\cdot}04$$

that is about one vowel extracted in twenty trials, and therefore not one in the given *twelve* trials; and for the probable error of w $0{\cdot}475\frac{c}{13{\cdot}5}$.

To determine c, it is to be observed that each of the given figures may be regarded as virtually the result of drawing 240 letters at random out of an indefinitely large mass of vowels and consonants mixed in the proportion $0{\cdot}3 : 0{\cdot}7$. Hence these may be regarded as pretty accurately ranging under a probability-curve whose modulus is

$$\sqrt{\frac{0{\cdot}3\times0{\cdot}7\times2}{240}}\times240=\sqrt{0{\cdot}42\times240}=10 \text{ nearly.}$$

Thus the value for w 0·04 is much less than the modulus indicating its range of error 0·8. At most there is a very slight indication of a very slight change, such as in fact may have happened.

The following series of the ratios between the sexes at birth in the county of Herts for twenty-one years, 1858-79, illustrates either kind of modulus given prior to the particular series under consideration; according as we content ourselves with an empirical determination of the "physical" modulus for this ratio, such as I have given at p. 198 of my "Methods of Statistics," or ascend to the higher* theory of Professor Lexis. On either view the modulus for the ratio in a midland county of population about 200,000 is about 38.

The accompanying series starts with 1,040, the ratio for 1858, and wheels round through 1,019, the ratio for 1868, on to 1,090, the ratio for 1878.

1043	996	1019	+47	1		−	+ 47	
1049	1054		−5	2		10		
1076	998		+78	3			234	
1114	984		+130	4			520	
1032	1012		+20	5			100	
1009	1055		−46	6		276		
1050	1055		−5	7		35		
1032	1072		−40	8		320		
1050	1010		+40	9			360	
1090	1040		+50	10			500	
						− 641	+ 1761	= 1120

The third row shows the excess of the terms in the first over those of the second. The next row consists of multipliers. The sum of the weighted differences $Srx_{+r} - Srx_{-r}$ is 1,020. The sum of squares Sr^2 is 385. Whence for w $\frac{1120}{770} = 1{\cdot}45$; and as the

* Ibid.

modulus for the probable error of w, $\frac{38}{\sqrt{770}} = 1{\cdot}3$ nearly, there is therefore some, but not much, evidence of an increase* in Hertfordshire of the sex-ratio during the twenty-one years. Much the same conclusion might have been obtained with less trouble by comparing the mean of the first ten years, 1,028, with the mean of the last ten years, 1,055. The difference is 27. And the modulus whereby which the significance of this difference is to be tested is $\sqrt{\frac{2 \times 38^2}{10}} = 17$ nearly.

As an example of modulus not known beforehand, but elicited from the observations themselves, let us take the death-rates for all England for the years 1838-78 (omitting the year of cholera 1849). Treating the first half and the second half of the series separately according to the usual method for *un*-progressive means, I find much the same value for the modulus, 13 or 14;† a value which is evidently a superior limit in case there is a real progress in the series operating in the manner just explained. On the series of forty terms, I‡ find for $w - \frac{250}{5340} = -0{\cdot}05$ nearly, and as modulus for the error of w $\sqrt{\frac{180}{5340}} = 0{\cdot}18$ nearly. Thus the indicated decrease is well within the probable error (0·9) of the indication, and therefore deserves no attention.§ This conclusion agrees with that reached by a simpler process‖ in "Methods of "Statistics." The remarks there made and the examples here adduced seem to show that our method of dealing with progressive means is far from being indispensable. It is a mechanical mode of preparing materials which might be more conveniently dressed by the human hand—if only that hand be free from the taint of interest and passion. Where the hands are clean we need not be afraid of "cookery."

APPENDIX.

Note to p. 471.—Let there be $(2n + 1)$ observations made at $(2n + 1)$ epochs; and let the modulus for each observation be the same, namely, $\frac{1}{h}$. Put x for the real value at the $(n+1)^{\text{th}}$ epoch, and let w be the assumed equicrescent increment; so that at the $(n+2)$, $(n+3)$ . . . epoch the real values are $x + w$, $x + 2w$, &c., and conversely at the epochs $n, n-1, x - w, x - 2w$ . . . . . Then according to the theory of errors we have to determine x and w so that—

* Contrary to what might have been expected from the general decrease in England.

† "Methods of Statistics," p. 205.

‡ There was an inaccuracy in my work, not likely to affect materially the result, namely, that I took for the central point of the series the year 1858, the twentieth term, rather than the point between the twentieth and twenty-first term; there being forty terms in all.

§ Since 1878 there has been a decrease obvious to inspection (*cf.* "Registrar-"General's Report for 1883").

‖ P. 205.

$$\ldots\ e^{-h^2[x-2w-x_{-2}]^2} \times e^{-h^2[x-w-x_{-1}]^2} \times e^{-h^2[x-x_0]^2} \times e^{-h^2[x+w-x_1]^2} \times e^{-h^2[x+2w-x_2]^2} \ldots\ldots$$

should be a maximum; where $x_{-n}\ldots x_{-2}, x_{-1}, x_0, \ldots x_1, x_2 \ldots\ldots x_{+n}$ are the given observations. Differentiating the sum of the exponents with regard to x and w separately, we have the two equations—

(1.) $(2n+1)x-[x_{-n}+\&c.+x_{-1}+x_0+x_{+1}\ldots+x_n]=0.$

(2.) $2w[1^2+2^2+3^2+\&c.+n^2]-[(x-x_{-1})+2(x-x_{-2})+\&c.+(x_1-x)+2(x_2-x)+\&c]=0.$

The first equation gives for x the arithmetical mean of the observations. The second equation gives for w $\dfrac{Srx_{+r}-Srx_{-r}}{2Sr^2}$.

To find the probable error of this value, it is a sufficiently accurate procedure to treat the *most probable* value of x as the real value. Then the values of w are seen to range under a curve of the form $Ae^{-2h^2[1+2^2+3^2+\&c.+n^2]+2wP-Q}$ and the probable error of w as determined by making the above expression a maximum is $\dfrac{0{\cdot}475}{h\sqrt{2\ (1^2+2^2+3^2+\&c.)}}$.

The more correct procedure is to take account of all the possible values which x the real value at the $(n+1)^{st}$ epoch may have. To do this we ought to integrate with regard to x the expression in the preceding page, and form the resulting expression in w, say $F(w)$, determine for w the most probable value and the probable error thereof. It happens, however, in our particular case (though not in general, not when the weights of the terms are different) that the rough and ready method leads to the same conclusion as the safe and longer road.

For further reflections on the determination of probable error, when the best value of *two* quantities has to be simultaneously determined, see my paper on "Observations and Statistics," *Cambridge Philosophical Transactions*, p. 149.

Note to p. 471.—Perhaps the reader may be inclined to doubt whether if there really was no progression, w would be as small as the theory then requires. The following reflection may remove this suspicion. Suppose we have $2n$ observations of a fixed quantity and of equal precision h. Let us inquire what is the probable error of the quantity?

$$[n(x-x_n)+\&c.+2(x-x_2)+(x-x_{-1})]-[(x-x_1)+2(x-x_2)+\&c.+n(x-x_n)]\div 2Sr^2$$

where x is the real quantity, and $x_{-n}\ldots x_{-1}$ are the first, n, $x_1\ldots x_2$ the last n observations. Consider a single element of the numerator of the expression $r[x_r-x_{-r}]$. The modulus under which the sum of two observations multiplied by r ranges is of course $r\sqrt{2c^2}$, where $c=\dfrac{1}{h}$. Whence the modulus for the error of the whole expression for w is $\dfrac{\sqrt{2c^2\times Sr^2}}{(2Sr^2)}$. Its probable error is $\dfrac{0{\cdot}476}{h\sqrt{2Sr^2}}$. When therefore the value above found for w considerably exceeds this quantity, we are justified in believing that the object under observation is *not* fixed. *Q.E.D.*

IV.—*Census of Part of the North-West Territories of Canada, August*, 1885.

[Abstracted by G. B. Longstaff, Esq., M.A., M.B.]

In the far north-west of Canada, beyond the new province of Manitoba, lies a vast country known as the North-West Territory. A portion of this country, bounded on the east by Manitoba and Lake Winnipeg, on the west by the Rocky Mountains, on the south by the United States, and on the north by the 55th parallel of latitude, forms the "Provisional Districts" of Assiniboia, Saskatchewan, and Alberta. These districts measure 417 miles from north to south, have a mean extent from east to west of 740 miles, and contain 309,000 square miles, chiefly prairie land, they are therefore two and a half times the size of the United Kingdom. At the census of 1881 within this vast area there were but 27,239 persons, of whom no less than 21,615 were Indians, leaving only 5,624 for whites and half breeds.

The Canadian Pacific Railway placed this country in communication with the outer world in the summer of 1882, and by the summer of 1884 had traversed it to the Rocky Mountains. Exaggerated statements have been circulated as to the recent progress of the north-west, but the facts, as ascertained by a census taken in August, 1885, or only four years and four months after the preceding one, are sufficiently striking.

Population of Assiniboia, Saskatchewan, and Alberta in 1881 *and in* 1885.

	Whites and Half-breeds.	Indians.	Whites.	Half-breeds.	Indians.	Total.	
	1881.	1881.	1885.	1885.	1885.	1881.	1885.
Assiniboia	1,057	8,736	16,574	1,017	4,492	9,793	22,083
Saskatchewan	3,208	6,678	1,892	2,594	6,260	9,886	10,746
Alberta	1,359	6,201	4,878	1,237	9,418	7,560	15,533
Total	5,624	21,615	23,344	4,848	20,170	27,239	48,362

As regards birth places, the census of 1881 gave such imperfect information that a partial comparison is alone possible.

Birth Places. Enumerated in the Three Provisional Districts of Assiniboia, Saskatchewan, and Alberta.

	1881.	1885.	Increase.
Natives of the territories	23,385	25,169	1,784
„ Manitoba	1,434	3,144	1,710
„ all other places	2,420	20,049	17,629
Total	27,239	48,362	21,123

The increase in the natives of the Territories would be accounted for by a "natural increase," or excess of births over deaths, of 15·1 per 1,000 per annum; not an excessive rate (that of England and Wales for the four years 1881-84 averaged 14·2). The increase of natives of Manitoba clearly indicates a considerable migration from that province. The chief interest attaches to the accession of 17,629 persons who were natives of regions outside the limits of Manitoba and the North-West. It is not possible to analyse this *increase*, but the birth places are given for the 20,049 persons enumerated in 1885, and this number does not differ by very many from that increase.

Birth Places of 20,049 *Persons enumerated in Assiniboia, Saskatchewan, and Alberta in* 1885.

Natives of Ontario	8,823	
„ Quebec	1,340	
„ other Provinces	911	
Total natives of Canada		11,074
Natives of England and Wales	3,853	
„ Scotland	2,143	
„ Ireland	1,162	
Total natives of United Kingdom		7,158
Natives of the United States		1,007
„ all other countries		810
Total		20,049

This table shows that the "pioneers" in this new land are for the most part composed of natives of the American continent; of these again the large majority are from Ontario, proving clearly the greater enterprise of that English speaking province. Amongst those from the old country the English and Scotch largely predominate, the latter being especially numerous in proportion to the inhabitants of that portion of the United Kingdom. It may be remarked that the Irish do not appear very anxious to take up land in the north-west, although offered to them free, they prefer to settle in the crowded cities of the United States.

Houses (not counting Shanties and Tents).

	Inhabited.		Building.	
	1881.	1885.	1881.	1885.
Assiniboia	408	5,967	30	217
Saskatchewan	1,171	1,556	28	76
Alberta	485	1,937	35	156
Total	2,064	9,460	93	449

It will be seen that the increase of inhabited houses is very large, especially in Assiniboia. The large increase in "house" buildings proves that the country was still progressing rapidly at the time of the census, more especially as the frame houses used in that country do not take long to build.

The population in 1885 was made up of 27,113 males and 21,249 females, showing an excess of 5,864 males.

The religious census is evidently imperfect, the following table gives an abstract of it:—

Religions, 1885.

Church of England	9,976	No religion	641
Roman Catholics	9,301	Not given	4,464
Methodists	6,910	Pagans	7,893
Presbyterians	7,712		
Other sects	1,465	Total	48,362

It is evident that a large number of Indians are returned as Christians.

As regards occupations it may be noted that no less than 7,248 are returned as farmers; to these may be added 774 returned as "farmer's sons," 161 as "ranchers," and 132 as "cow-boys," making a total employed in agricultural and pastoral pursuits of 8,315. Only 1,033 were returned as labourers.

It is an indication of good government that in all this vast country, containing as it does over 20,000 Indians, it is found that order can be maintained by 793 military police, assisted by 99 "militia officials," and 199 "government employés."

The occupiers of land numbered in 1881 but 932, they had increased by 1885 to 6,987. It may be mentioned that 6,885 of these were owners of the land they farmed.

Land Occupied and Cultivated.

[In thousands of acres.]

	Total Area.	Occupied.		Improved.		In Crop.	
		1881.	1885.	1881.	1885.	1881.	1885.
Assiniboia	60,800	44	1,642	2	160	1·5	106
Saskatchewan	72,960	155	506	12	20	12·0	6
Alberta	64,000	114	1,714	14	16	7·5	12
Total....	197,760	313	3,862	28	196	21·0	124

The large increase in land occupied in Alberta is due to the extensive cattle ranches there.

As an indication of the rate of progress, the numbers of acres of prairie "broken" in the twelve months preceding the census, are given as follows:—

Thousands of Acres of Prairie Broken in Twelve Months.

Assiniboia	95
Saskatchewan	11
Alberta	6
Total	112

As yet but a very small proportion of the available land is settled.

Percentage of Total Area Occupied, &c., 1885.

	Occupied.	Improved.	In Crop.
Assiniboia	2·70	0·26	0·16
Saskatchewan	0·69	0·03	0·01
Alberta	2·67	0·03	0·02

Other indications of progress are shown by these figures, but they are scarcely proportionate to the other elements of growth.

	1881.	1885.
Churches	44	66
Children attending school	578	1,317

The following table briefly indicates the progress of the three provisional districts in four years and four months. It may be remarked that both absolutely and relatively the progress is by far the greatest in Assiniboia; this might have been expected since it is traversed throughout its length by the Canadian Pacific Railway, and is nearest to the more settled parts of Manitoba. Similarly the fact that in most respects Saskatchewan has shown least progress may be explained by its want of railway accommodation.

Assiniboia, Saskatchewan and Alberta, Progress in Four and a Half Years.

	1881.	1885.	Increase.	Increase Per Cent.
Population (excluding Indians)	5,624	28,192	22,568	401
Inhabited houses	2,064	9,460	7,396	358
Houses building	93	449	356	383
Land occupied ..... acres	312,234	3,861,818	3,549,584	1,137
„ improved ..... „	27,832	195,985	168,153	604
„ in crop ..... „	20,835	123,794	102,959	494
Occupiers of land	932	6,987	6,055	650
Churches	44	66	22	50
School attendance	578	1,317	739	128

V.—*Index to the Catalogue of the Library.*

The Council have much pleasure in announcing that the Index to the Catalogue of the Library is now ready for issue, and a copy will be forwarded to any Fellow of the Society who may not already have received one, on application, accompanied by the sum of 6*d.* in postage stamps, to cover the expense of delivery by parcels post.

The following is the preface to the index :—

The present volume is an index to the "Catalogue of the Statistical Society," published in June, 1884, in which the subject-matter of each work comprised in that volume is alphabetically arranged, and to a certain extent classed.

The two volumes record all books in the library at the close of the year 1883.

The preface to the catalogue explains the system upon which that work was prepared.

The present volume furnishes the heads and sub-heads of each subject printed in Egyptian or Roman characters respectively, and the names of authors, as well as the titles of the works, as given in the catalogue, in italics. When both are stated, the latter are generally inserted within brackets. In the majority of cases the year or years to which the work refers are inserted, instead of the date of publication, as furnishing a more useful guide to the inquirer. The titles of books have been given in their original language, the subject-matter always in English.

The information relating to each country and town is given both under those heads, and under the heads of the several subjects.

The repetition of the several heads is avoided by the use of the sign —, and the repetition of sub-heads, and of names of authors and publications, by the use of the letters *id.*

VI.—*Statistics of the Newspaper and Periodical Press.*

The following particulars are taken from *May's British and Irish Press Guide for* 1886 :—

"The following statistics represent the present condition of the newspaper and periodical press of the United Kingdom :—

Newspapers.

"There are now 2,487 newspapers and class journals issued, distributed as follows :—

Metropolis	666	2,487
England	1,331	
Wales	81	
Scotland	210	
Ireland	117	
British Isles	22	

"The accompanying table will show the periods of their publication :—

When Published.	Number of Newspapers Published in						Total.
	Metropolis.	England.	Wales.	Scotland.	Ireland.	British Isles.	
Daily, morning	17	45	4	10	11	—	87
„ evening	12	70	2	12	7	1	104
Five times a week	1	10	—	—	—	—	11
Three „	5	11	—	2	7	3	28
Twice a week	13	69	1	9	20	4	116
Monday	10	9	1	1	1	—	22
Tuesday	12	49	4	11	1	1	78
Wednesday	47	73	3	28	1	2	154
Thursday	62	92	14	13	13	—	194
Friday	161	431	37	45	22	3	699
Saturday	115	408	13	70	89	8	703
Sunday*	9	1	—	—	—	—	10
Fortnightly	13	1	—	1	—	—	15
Semi-monthly	11	1	—	—	1	—	13
Monthly	161	46	1	6	4	—	218
Bi-monthly	2	—	—	1	—	—	3
Quarterly	6	2	—	—	—	—	8
Irregular and miscellaneous	9	13	1	1	—	—	24

* Although nine journals are recognised as Sunday newspapers, as a fact there are but two—the *Observer* and *Referee*—published in London, the others issuing editions on preceding days also.

"Noticeable features in the above list are the favour with which the last two days of the week are regarded as days of publication, and the large number of monthly papers issued in London—the increasing number of trade journals accounting in a great measure for the latter.

"The political bias of the newspaper press is exemplified below :—

Principles.	Number of Newspapers Published in						Total.
	Metropolis.	England.	Wales.	Scotland.	Ireland.	British Isles.	
Liberal	41	396	38	94	33	8	610
Conservative	34	294	13	21	41	4	407
Liberal conservative	4	19	2	5	13	3	46
Independent or neutral	586	617	28	90	68	7	1,396
National	—	2	—	—	22	—	24
Radical	1	3	—	—	—	—	4

"Six newspapers appear in the French language, including four published in the Channel Islands, two in German, one in Hindi, one in Spanish, and one in Hebrew; besides these there are thirteen printed in the Welsh language.

Periodical Publications.

"The periodical publications (including magazines, reviews, &c.) issued in the United Kingdom number 1,129 examples, localised in the following manner:—

Metropolis	807	
England	202	
Wales	23	1,129
Scotland	67	
Ireland	26	
British Isles	4	

"They are issued at varying intervals, as exemplified by the annexed table, in which the monthly form of publication will be seen to predominate very considerably:—

When Published.	Number of Periodicals Published in						Total.
	Metropolis.	England.	Wales.	Scotland.	Ireland.	British Isles.	
Daily	4	—	—	—	1	—	5
Weekly	93	14	—	4	3	—	114
Fortnightly	6	—	—	1	—	—	7
Semi-monthly	5	1	—	—	—	—	6
Monthly	511	122	21	53	20	3	730
Bi-monthly	9	1	—	2	—	—	12
Quarterly	118	17	2	5	2	1	145
Half-yearly	17	4	—	—	—	—	21
Irregular and various	44	43	—	2	—	—	89

VII.—*Notes on some Recent Additions to the Library.*

Vital Statistics: A Memorial Volume of Selections from the Reports and Writings of William Farr, M.D., D.C.L., C.B., F.R.S., late Superintendent of the Statistical Department of the Registrar-General's Office, England. Edited for the Sanitary Institute of Great Britain by Noel A. Humphreys, of the Registrar-General's Office, Member of the Statistical Society of London. xxiv + 556 pp. 8vo. London, 1885. With portrait and index.

This volume is the outcome partly of a desire to commemorate suitably the labours of Dr. Farr, and partly of a want, practically felt by students of Sanitary Science, of these Vital Statistics in an easily accessible form. The editor has prefaced the work with a biographical sketch, which will be welcome to most men, for Dr. Farr carried on his work in such a quiet way, that to many he must have appeared more in the character of a magician ruling our lives than the collator and exponent of hitherto unexplained vital facts. If a lesson is to be learnt from the biography, it is that all men who attain to scientific fame do not achieve their success without working very hard for it. Dr. Farr would occasionally sit up all night to work out his formulæ, and the unremitting atten-

tion he gave to every detail of his work accounts considerably for the success which rewarded him. We are glad to see that while Mr. Humphreys allots the due share of praise to his late chief, he does not fail to record his appreciation of the services of Major Graham.

The work is divided into seven parts, dealing with Population, Marriages, Births, Deaths, Life Tables, and Miscellaneous Questions. Every part is furnished with an explanatory Detailed Contents, and with a short Introduction by the editor, and all references to the original publication are carefully given. The *Vital Statistics* in their present shape are of undoubted value to all students of the questions it embraces—a more fit memorial in every sense could hardly have been hit upon—and it goes without saying that the editing has been ably and carefully done.

Letters and Journal of W. Stanley Jevons. Edited by his Wife. xii + 473 pp. 8vo. London, 1886. With index.

What science lost through the premature death of one of the profoundest philosophical thinkers of the day, who was closely identified with the Statistical Society and with its pursuits, is perhaps more fully realised by the friends of Mr. Jevons in the Society than by any other class. It is impossible to estimate fully what his work was, and what he could have done if he had lived; but the loss has been immense. The present work will strengthen the impression of his genius, though it is mainly interesting as the revelation of a fine and noble character to the world, which should be a model to the younger generation.

Born in Liverpool in 1835, of parents of no mean intellectual capacity, Mr. W. Stanley Jevons was brought up under parental tuition, assisted by a governess. At ten years of age his mother died, and her place was thenceforward taken by his elder sister Lucy (Mrs. Hutton), whose care he and his brothers and younger sister seem never to have forgotten. Soon after he was sent to the Mechanics' Institute High School in Liverpool, then under the head mastership of Dr. Hodgson, but much to his regret he was soon removed and placed at a private school. At fifteen years of age he went to University College School, London, entered the college a year later, and in 1852 he took honours in Chemistry and Botany at the Matriculation Examination. He continued his studies at the college until he was eighteen, when he was appointed assayer to the newly established mint at Sydney, New South Wales. While attending college he had been looking forward to the time when he should return to his family and enter into some business close to his home. He consequently at first felt the greatest reluctance to go to the Antipodes, but he saw plainly enough that to go out was after all the best thing for him to do. He had an intense affection for his home and family, such as is popularly supposed to be incompatible with the study of the so called dry sciences which so fruitfully occupied his time. While in Sydney he could save much money, partly because his salary was a large one, and partly because his modest ways did not make much demand on his purse. Apart from his duties he devoted much

time to meteorological phenomena; he studied the country, and there he first thought of exchanging the physical for the moral and logical sciences in which he began to think that his *forte* really lay. But although he occupied every moment of his life, his love for home, and the growing conviction that he would find more scope for the development of his ideas in a thickly peopled country, made him consider himself expatriated, and he pathetically likened himself to a convict who was waiting for his term to expire. He was still in Sydney when his father died suddenly of cholera at an hotel in Pisa. There had existed between father and son an unbounded confidence in each other, which made the loss doubly hard to bear. And when the sad news reached him, it brought forth those touching letters to his sisters, which show, perhaps more clearly than all the rest of the book, the sort of man Stanley Jevons was. In 1859 he left Australia, visited South America, crossed the Isthmus, went to Minnesota to visit an elder brother, and finally settled down in London to continue his studies at his former college. He had now of course made up his mind to abandon the physical sciences, and the following extract from a letter to his brother Herbert shows what others thought of his views: "Harry Roscoe" [now Sir Henry] "is rather indignant that I am no longer a chemist, and wants to know how I shall get my bread, which perhaps is quite a pertinent question." In June, 1862, he took his M.A. degree with honours, and his capacity for work is shown by the fact that in the previous April he had published an article on the Spectrum, while in the following July he published a notice on Kirchoff's Researches on the Spectrum. In 1863 he published his pamphlet on a *Serious Fall in the Value of Gold.* Two years later, at the age of twenty-nine, he produced his book on *The Coal Question;* and from that date we seem to have known him as a familiar friend. The *Coal Question* was not noticed so soon as he expected, but he had the gratification of seeing it mentioned by Mill and Gladstone in the House of Commons; and, as he says in his journal, it was "no slight thing to be quoted in the budget of a minister when he announces a change in the policy of the country he leads." Mr. Jevons's standing as a writer on economics was now established, and his success seemed only to invite him to further effort. His publications *On the Substitution of Similars, The Theory of Political Economy, The Principles of Science, The Commercial Crises and Sun-spots, Primer of Political Economy, Studies in Deductive Logic, The State in Relation to Labour, &c.*, with other minor papers, now appeared in rapid succession at the rate of almost five every year. Mr. Jevons was elected a Fellow of the Royal Society in 1872, and the degree of LL.D. of the University of Edinburgh was conferred on him in 1876. He was elected a Fellow of this *Society* in 1864; entered the Council in 1866, but remained on it only one year. He rejoined the Council again in 1879, and served as an Honorary Secretary for three years; when he resigned his Secretaryship on account of ill health in 1880, he was chosen Vice-President.

But while at the first blush of fame he was not situated in the happiest of circumstances, and it was not until he obtained the

professorship of Logic and Mental and Moral Philosophy at Owens College that he was in a position to cease from troubling about money matters. After taking his degree he had been in hopes of paying his way by popular writing, but he soon found that his correct methods of thought unfitted him for that class of work.

It is remarkable that Mr. Jevons did not think himself clever. He found that others could grasp questions much more sharply than he could, and he complains of his memory being poor, and occasionally when he was still unknown, and his works hung fire, he was seriously troubled as to whether he had not overrated his powers. "What success I have comes from labouring without cessation from the earliest years I can at all remember," he writes to Mrs. Hutton, and he has repeated the statement on more than one occasion. Undoubtedly, apart from any question of mere ability, he always did his work thoroughly, whether it was in preparing for an examination, collecting specimens for his herbarium, in the volunteer rifle competitions, or in the preparation of the books which have made his name. The heaviest portion of the *Coal Question* was prepared during summer holidays.

The end came all too soon. As far back as 1865 he complained to Mrs. Hutton, "I long for a little country, and rest which I seem never destined to attain." Little by little the complaints became more numerous; he was obliged to give up evening tuition at Owens College; finally the professorship altogether, and was compelled to go abroad for his health. For a time his health improved, and he accepted, only soon to resign, the professorship at University College, London. Intensely active, he only gave way when it had become physically impossible to continue any longer. Grieved as we are that he is no longer among us, we can hardly be astonished at the result. By simple overwork he had undermined a constitution not overstrong, and thus prematurely brought about the catastrophe which his friends dreaded but were averse to name. And so on the 12th August, 1882, passed suddenly away one of the finest thinkers and kindest of men the present generation has known.

In the above we have only been enabled to give a bare outline of the life which the volume before us so well depicts. Mrs. Jevons has modestly styled the book the *Letters and Journal* of her husband. This title scarcely conveys the idea of the life therein described, for by the skilful arrangement of papers at her disposal, she has succeeded in giving us a very clear and acceptable biography. Not the least valuable portion of the book is the chronological list of Mr. Jevons's writings, in Appendix B.

The Distribution of Products, or The Mechanism and the Metaphysics of Exchange. Three Essays.—*What Makes the Rate of Wages? What is a Bank? The Railway, the Farmer, and the Public.* By Edward Atkinson. 303 pp. 8vo. New York and London, 1885.

This important work by one of the leading American economists, although we are rather late in the day, should not be passed unnoticed in our pages. Whenever we descend to bad times, or more correctly speaking, to the revolving periods of small or no profits, the slackness of business throws many men out of work,

and the discontented condition of the working classes becomes a prominent topic of discussion. Long before the extension of the franchise or the spread of the quasi-education of the nineteenth century had appreciably altered the ideas of the wage-earning classes, both philanthropists and economists had devoted much time and labour to inquiries concerning the causes which appear so deeply to concern them. The margin of profit, or rather the margin of excess of pay over the actual cost of necessaries, of working men is apparently so small, that very often the simple indulgence of a daily glass of beer and of a smoke are sufficient to prevent them putting by for a rainy day, or to leave them destitute as soon as work fails. Their whole life is in consequence a continual struggle for an increase in their wages, and when having forced their wages up to abnormal or unprofitable rates, the usual reaction sets in, they fail to ascribe the reduction to its proper causes, but are inclined to attribute it to the hostility of capitalists. This feeling has of late years been considerably fostered, and has received a powerful stimulus from the attractive yet baseless arguments of Mr. H. George. Mr. Atkinson's main object appears to be to dispel some of the misleading doctrines of the author of *Progress and Poverty*, or his allies. We do not think his method is the best that could have been chosen, but in many respects it is interesting.

In the first of the three essays, entitled *What Makes the Rate of Wages?* Mr. Atkinson takes for his text M. Bastiat's proposition, that, "In proportion to the increase of capital the absolute share (of a given product) falling to capital is augmented, but the relative share is diminished; on the other hand, the share falling to labour is increased, both absolutely and relatively," a proposition which is accepted by all the more modern economists, but which is generally expressed in the words that the profits of capital decrease while the rates of wages increase. Had our author adhered to the usually accepted wage-fund theory, half his difficulties would have been avoided, and the whole of his argument proper might have been stated in a dozen pages, but he has been misled at the outset, like many others who have drawn their inspiration from the same fount. The extraordinary part of his statement (p. 24) is that he upholds Thornton in condemnation of the old wage-fund theory, at the same time supports Cairnes's true theory, and then goes on to tell us that in America Professor F. A. Walker propounded the true wages theory. But how can all this be true if Thornton, Cairnes, and Walker all hold different views on this question? It is remarkable that while Mr. Atkinson states that his views coincide with those of Professor Cairnes, his whole argument is intended to prove that (pp. 69 and 70) "wages are a remainder over from the sale of the product, and are determined by the sum of money which that product will bring in the markets of the world." There is clearly a fallacy here. He has apparently misinterpreted the function of capital, forgetting that all investments in an industry depend upon the profit to be drawn therefrom, and that if the ruling wages or other items of production are so high as to preclude any compensation to the

capitalist for setting his capital in motion, the capital will seek other channels. Wages are one of the fluctuating elements of production, and their rate depends on the ratio of the available capital to the working efficiency of the population (and this same ratio may regulate the sum of money at which the product can be, but is not necessarily, placed on the open market). No one will venture to say that the wages of the wretched Belgian lace makers are a remainder over after the capitalist has drawn a profit, nor that these wages regulate the price of lace, for as is well known the profits of the lace dealers are large, and the low rate of wages is simply due to the numerous population, every member of which in order to get work is only too glad to take it at a lower scale of remuneration than his neighbour. Nor will any one maintain that the publishers' hacks at the British Museum are paid proportionately to the price of the articles they help so materially to produce. The high wages of labourers on the farms of the Western States and on the stations in the interior of Australia are directly due to the sparse population, and as that population increases, so does the rate of wages diminish. And so on *ad lib.*

The third essay, *The Railway, the Farmer, and the Public*, was written in order to prove that the American railway companies are not the ogres they are generally supposed to be. By the free use of valuable statistical matter he succeeds in demonstrating very clearly that instead of having become a blood sucking monopoly, the amalgamation of railway lines has saved the country many millions of dollars by quickened and cheapened distribution, and that in doing so their own profits have been considerably diminished. It would also appear from the Ohio State railway returns that cheap through rates are not unjust to the producers locally along the lines. The facts and figures he gives are not only interesting in themselves, but they help to throw some light on the English question of railway rates, which in consequence of the long sustained agricultural and trade depression generally is likely to agitate the public mind for a considerable time to come. This essay alone should make the volume deserving of study. Mr. Atkinson is always somewhat discursive, but in many ways his essays are ingenious and stimulating, and, as the work of one of the ablest Americans, they should be better known than they are in this country.

The Financial History of the United States, from 1774 *to* 1885, by Albert S. Bolles. 3 vols. 8vo. New York, 1879-86.

The early days of American finance are not marked by any particular episodes worthy of extraordinary notice. The treasury secretaries appear to have managed their budgets with a fair average amount of skill, and had the rebellion not interfered, there would in all probability be little of interest to record now. But the rebellion naturally had a lasting effect on every institution of the country. More than twenty years ago, when the United States bonds were at a heavy discount, few statesmen or financiers would have thought it possible that the country could in the short period of less than a quarter of a century not only overcome the burden of a

war expenditure amounting to 1,238 million pounds, but also resume specie payments, reduce its national debt to within manageable limits, and finally establish itself on a fairly sound financial bottom.

Compelled as the author is to omit many important facts, and to condense others, he has nevertheless succeeded in placing before his readers a very clear record of the events and measures which have been more or less the cause of the successes just mentioned. The accounts of the administration of the treasury, the floating of the loans, the system of government accounts, the coinage, the national banking system, the resumption of specie payments, and the payment and refunding of the national debt, and other cognate subjects, have all considerable importance for us, either as lessons or examples explanatory of what we should avoid, or by which we may benefit, or as further exemplifying principles which to some extent rule our own fiscal policy. Perhaps not the least interesting chapter is that one devoted to an account of the resumption of specie payments. Specie payments had been suspended in December, 1861, and notwithstanding the example of the defaulting Congress of 1780, it had always been the intention of the heads of the Government to resume proper payment and thereby redeem its pledges as soon as it should have been in a position to do so. When, therefore, in 1865, Mr. Hugh McCulloch entered on the duties of secretary to the treasury, he found the ground not a little prepared for him. He set to work at once on his by no means easy task, but he had to deal with a Congress which, if not exactly hostile, was more afraid of possible trivial evils than it was assured of the positive benefits to be derived from the adoption of sound principles. Among the chief objections were the fear that debtors would have to pay more than they had contracted for, and that bugbear of the unscientific trader, the dread of lower prices. For a while, however, Mr. McCulloch's clear and calm views surmounted all resistance, and he was empowered as a beginning to contract the currency by the funding of the interest-bearing notes. For two years the financial arrangements were proceeding favourably, when in 1868, in consequence of other causes leading to depression in trade, Congress, in what may almost be described as a state of panic, repealed the powers with which the Secretary of the Treasury had been invested. For a moment its action appeared to ease the troubles. Nevertheless business did not mend, but culminated in the explosion of 1873, the effects of which were hardly less disastrous to America than they were to Europe. Much of the trouble was ascribed to the desire to contract the currency, and all the old arguments against a return to an honest policy came again to the fore. Every man became a financier, and the insensate plans for curing the evil at a single sitting which poured in upon Congress, would fill whole volumes. Finally, as if there were not sufficient cause for difficulty, Congress very coolly passed a bill which practically amounted to one of repudiation, but President Grant was not above stigmatising it as such, and Congress was forced to adopt sounder financial principles. In 1875 it decided that specie payments should be resumed in 1879, although even then many doubted whether the principle would

ultimately be carried out. The solid basis on which the banks had been established in 1863 helped the Government materially in the practical carrying out of its arrangements, and on that account alone, if on no other, the unscrupulous agitation which some half dozen years ago was manœuvring to destroy the national banking system, and replace it by Government notes, was and is doubly to be deprecated. What is especially noticeable in the great struggle to be honest is the power occasionally brought to bear on the Treasury by a handful of bold and unscrupulous speculators (vol. iii, pp. 304 and 312), who, aware that a sounder state of the finances meant less scope for their nefarious practices, have repeatedly attempted to block the road to progress. Notwithstanding in every case when the question had to be finally settled as to whether the State should acknowledge its promises or repudiate its engagements, the timely veto of the President (ibid., pp. 289 and 493), or the soberer views of Congress (ibid., pp. 319, 320) have asserted themselves, loyally supported by the good sense of the country at large.

The financial history of the United States falls naturally into three great periods, that of Government Notes ranging up to the year 1789, that of State Bank Notes from 1789 to 1863, and that of a Sound System of Finance dating from 1863 upwards. Mr. Bolles, however, while fairly adhering to these three periods, has subdivided them again into five lesser periods, in the history of every one of which almost every chapter deals with a question as historically complete in itself. This method of narration may favour a clearer exposition of the subject recorded, for the immediate historical sequence of the facts bearing thereon is brought more strikingly before the reader, but it necessarily fails in giving the reader a general grasp of the subject under review, keeping clear as it must do of other facts indirectly affecting the subject. The author has carefully avoided obtruding his personal views, and unfortunately in one of the few cases (chap. xvi, vol. i) in which he has not followed this rule he has not been very successful. This chapter is a homily on speculation, corruption, and repudiation. When a historian reads us a lesson we do not want moral principles discussed, but what we expect is the skilful arrangement of facts whereby the evil results of the bad practices are laid bare before our eyes. From p. 488 (vol. iii) we learn that Mr. Bolles believes in "reasonable protection," whatever that may mean, and occasionally at the end of a chapter he says a few words as a general wind up. Mr. Bolles is not only the editor of the American *Bankers' Magazine*, but he is Professor of Mercantile Law and Practice at the Pennsylvania, and Lecturer on Political Economy at the Boston, University, and now he has gained unrivalled experience in collecting and arranging the facts he places before us. Surely he must have something more to give us than the mere stringing together of a mass of unnecessarily disconnected facts. What does he think of the whole question? What is the future of the country's finances? Does he attribute the success of the financial arrangements, apart from their soundness in principle, to the vast number of immigrants and to the large sums of money which have flowed into the country during the last twenty years,

or does he, in common with so many countrymen, attribute the success to the protective system? Perhaps he will crown his valuable record by giving us a summary of his views in the fourth (statistical and last) volume which has been promised.

Annual Statistical Report of the Secretary to the Members of the British Iron Trade Association, on the Home and Foreign Iron and Steel Industries in 1885, by J. S. Jeans. viii + 143 pp. 8vo. London, 1886.

This, the ninth annual report, sustains its character for the ability and conciseness with which a large amount of most useful statistical information, gathered from private sources, is put together.

With regard to the iron and shipbuilding trade, Mr. Jeans expresses himself as sanguine that a revival is to be expected before long, and justifies his belief by, among others, the following facts: That the tonnage added to the United Kingdom register during the last three years has been below the average of the last decade; 2. That these additions embrace a larger proportion than hitherto of sailing tonnage, which means less efficiency; 3. That between the years 1873 and 1883 the non-English European tonnage of merchant navies has decreased; and, 4. That although this decline has been more than compensated for by the increased tonnage of steam vessels, such increase of steam tonnage does not appear to have kept pace with the enormous development of commerce over the same period. By an ingenious and we believe novel "rough and ready method of approximating the relation of tonnage constructed to the tonnage of business done," Mr. Jeans attempts to show that while in 1870 there were 5·8 tons of business done to every ton of shipping available, in 1883 the proportion was 7·7 to 1, equal to an increase of 33 per cent. Mr. Jeans is however touching on very treacherous bottom here. In the first place, in order to reduce steam ships to the standard of sailing ships it is doubtful how far any one is justified, in a statistical question of this sort, in making use of the loose factor 3 : 1 as the proportion of efficiency between the two classes of vessels; and secondly, as he points out himself, there is no allowance made for ships entering and clearing in ballast, which are necessarily more frequent in bad times than at other periods. At the same time, we can quite understand that the movements of vessels in search of freights give rise in the shipping returns to a false idea as to the amount of business transacted. We are therefore unable to accept this increase in the carrying efficiency as a fact, and even if we did the augmenting business does not necessarily mean that a demand will arise for new ships. At the present moment the cry of the manufacturer, merchant, or shipper, is not a complaint that there exists no business, it is a cry of want of profit; and for so long as there is little or no profit, for so long may we expect in the shipbuilding and other trades a continuation of the present stagnation.

The Manufacture, Consumption, and Production of Iron, Steel, and Coal, in the Dominion of Canada, by James Herbert Bartlett. viii + 167 pp. 8vo. Montreal, 1885.

When we remember that Canada possesses large iron and coal

fields, we naturally ask ourselves how is it that we never see the name of Canada rank in statistical returns as an iron or steel producer? The fault of the omission certainly does not lie with our energetic colonists, for as the volume before us explains, they have not only made repeated efforts to establish iron and steel works, but they have also ventured and lost large sums of money in their attempts. Mr. Bartlett gives us detailed histories of the more important works started and forsaken, from which the only possible conclusion to be derived is, that the general conditions favourable to the establishment of the industry in Canada are wanting. Certainly in exceptional cases, such as at the Acadia Works (p. 43), where the iron was of somewhat remarkable quality, or at Picton (p. 46), where the coal field is only a mile or two distant, some sort of success has attended the ventures, but the great natural drawback, apart from any commercial restrictions, appears to be the absence of coal, or rather its great distance from the ore deposits. Mr. Bartlett evidently does not appreciate the difficulties which have proved so ruinous to so many pioneers, but thinks to overcome them all by that most delusive of panaceas, protection, or as he chooses to call it, the "enlightened" (p. 152) policy existing in the United States. Up to the year 1880 pig iron entered Canada free of duty, but since that date a duty of $2 per ton of 2,000 lbs. has been imposed, and at the same time a bounty on the production established of $1·50 per ton, which bounty is to remain in force to June of the present year, after which month and until June, 1889, it is to be reduced to $1 per ton. It seems to be considered fairly legitimate to extend a helping hand of this sort to an industry struggling on its first legs, but whether the Canadians, in view of their general adoption of protection, will be satisfied not to renew the bounty or not to raise the duty is very questionable. It is not an uncommon, but still it is a somewhat humorous, occurrence to see a pleader for protection blame the protective policy of another country for ruining one of his own industries. Mr. Bartlett blames (p. 21) Congress for the ruin of the Moisic iron works. The book is ably compiled, and contains numerous well arranged and apparently carefully prepared statistical tables and diagrams relating to the Canadian imports and exports, consumption and prices of iron, steel, and coal.

The Victorian Year Book for 1884-85, by H. H. Hayter, iv + 734 pp. 8vo. Melbourne, 1885.

In this the twelfth annual volume of the model treasury of Victorian (and we may say Australasian) statistics, the editor has, in view of the Colonial Exhibition, reprinted from a previous Year Book, now out of print, the account of the discovery and early history of the colony. He has also presented us with the usual folding sheets, statistical tables, and map brought up to date. The account of the constitution and form of government of New South Wales, unavoidably omitted last year, is now published in the appendix; and in consequence of the great alterations in the land laws of Australasia during the last five years, Mr. Hayter has very wisely appended fresh accounts of the laws as they stand now.

Although every colony had and still has a different system of Crown land alienation, the principle underlying them all may be said to have been almost identical. Every man or woman who proposed to settle in parts thrown open for that purpose, selected their piece of ground, paid a rent of several shillings per acre per annum for a specified term of years, when if certain other conditions had been fulfilled, they became the absolute possessors of the land so taken up. But when two or more men selected the same ground, and none would retire in favour of the others, the land in question was usually put up to auction, and naturally fell to the highest bidder, in which competition the poorer men always fared worse. A system with such a result is, as was to have been expected, much disliked in a "working man's country." But the system engendered, and still does where still in existence, another evil which affected whole settlements as well as isolated individuals. Not only the rich but also careful saving men were in the habit of taking up land for the simple purpose of selling it again when through the labour of the adjoining inhabitants it had risen considerably in value. If the land thus taken up had been put to any good use there would have been no complaints, but the rich selector merely puts in a bailiff, and when the other necessary conditions have been fulfilled, this man is withdrawn and the land allowed to run waste, until such time as the owner thinks propitious to claim his unearned increment. Selections of this sort give rise to absenteeism, an evil which is as hateful to a colonist as is a red flag to a bull. In this horror the colonist is justified by his argument that property has its duties as well as its rights, and he considers that an absent proprietor, who draws a benefit in *esse* or in *posse* from his land, cannot possibly do his duty by the district either through his purse or his advice or active and intelligent interest in public matters. Hence in democratic communities, where the representatives returned to the legislature are generally delegates with a well defined programme which they are pledged to carry out, a system of land alienation productive of a state of affairs so abhorrent to the masses is not likely to be of long duration. As a result it may be generally stated that every alteration in every successive land bill, projected or passed in Australasia, has had the tendency to restrict the size of the area of the land to be selected by individuals, and to favour the settlement of the smaller man who will live directly on the produce of the soil. The difficulty of enforcement of restrictive clauses has evidently driven some of the legislators to regard with a somewhat favourable eye the of late freely advocated American and European socialistic ideas concerning the question of individual right to hold real property. Indeed the youngest colony, Queensland, has, in her last land bill, admitted the principle that the possession of large landed properties by individuals is inimical to the welfare of the State, and enacts that with the exception of areas of 320 acres in extent, and on which the selector is to be a *bonâ fide* resident, no further alienation of Crown lands is to take place. Future *Year Books* will indicate what will have been the tendency of such land laws on the settlement and prosperity of the colony.

Prices and Wages in India, by J. E. O'Conor. *Government of India Department of Finance and Commerce.* ix + 48 + 12 pp. 8vo. Calcutta, 1886.

This is a short review of the prices of cereals from 1861, and of the rate of wages of agricultural labourers and masons, carpenters or blacksmiths, from the year 1873, up to date. The information to be gathered from a comparison of prices is, according to the author (p. 14), that the prices which have ruled in India during the past five years are distinctly higher than during previous periods, if the years of drought are not taken into consideration. He seems to be doubtful as to whether this rise is directly due to the fall in the price of silver (pp. 19, 20). The spread of communication (pp. 8 and 19) has been the cause of a more general level in prices throughout the country, as well as showing a "tendency to narrow the extreme limits between which prices formerly ranged." The demand for export seems to have excited an influence similar to that of improved communications. As to wages Mr. O'Conor is not sufficiently satisfied of their trustworthiness to hazard any inferences. The pamphlet is furnished with numerous tables, and twelve pages of diagrams showing the fluctuations in prices.

Scribners' Statistical Atlas of the United States, showing by Graphic Methods their Present Condition, and their Political, Social, and Industrial Development, by F. W. Hewes and H. Gannett. 120 pp. large fol. New York [1885].

We must protest once for all, and so have done with it, that we do not in any way accept as correct the opening statement of the authors in their preface, that the "study of statistics with the means ordinarily at command is a dry and difficult one." To the real statistician the study is *per se* of the most absorbing interest, and he does not require any artificial means to make it more attractive. The graphic method so largely used at the present day was not intended for him. The daily favour in which this method grows is more in answer to the spread of a proper knowledge of the use of statistics among classes who find a difficulty in grasping the meaning of a mass of ciphers, but whose understanding is quickened by the more enlivening method of expression by means of coloured maps, diagrams, or drawings. In the atlas before us the coloured map and linear graphic method has been used to express almost every fact, and the veriest tyro cannot have the slightest difficulty in understanding the meaning to be conveyed. But this work is not only of mere popular value, for it practically amounts to a very complete, clear, and accurate digest of the census of 1880, and therefore contains a mass of information to which the statistician may otherwise have considerable difficulty in obtaining access. Occasionally when the figures quoted are not taken from the census, the authors are careful to state their origin. We are, however, not a little astonished to see on pp. 69 and 112 that the estimates of Mr. Mulhall, who gives no account of his methods, a fatal defect in a statistician, are made use of for purposes of comparison. Occasionally also we have to complain of the

overpowering brightness of the blue, red, and orange colours which have been used in the maps and diagrams. When for instance the mean temperature of the July map is examined, on account of the bright red with which it is coloured, the eye soon tires and becomes confused. The more sober brown, green, or neutral tints used on the other maps do not exhibit this defect. Otherwise we can only speak in high terms of the work. The chapters on physical geography, and on the political history up to 1885, are useful addenda to the study of the figures which follow, and the whole is supplied with a comprehensive index. The total number of plates amounts to one hundred and fifty-one, and the atlas is carefully printed and well got up.

VIII.—*Additions to the Library.*

Additions to the Library during the Quarter ended 30th June, 1886, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial, and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.*, (f) *Periodicals, &c.*

Donations.	By whom Presented.
(a) Foreign Countries.	
Argentine Republic—	
Censo Escolar Nacional correspondiente a fines de 1883 y principios de 1884. Tomo ii. Estadistica Escolar. Plans. 8vo. 1885	The Statistical Bureau, Buenos Aires
Datos mensuales del Comercio Exterior. Año 1886. No. 42. 8vo.	The Argentine Legation, London
Buenos Aires.—Bulletin mensuel de Démographie de la ville de—. V^e^ année. Nos. 1—3, 1886	The Statistical Bureau
Austria and Hungary—	
Österreichische Statistik. Fol.—	
Band xi. Statistik der Rechtspflege. Heft 2. Die Ergebnisse des Concursverfahrens im Jahre 1883. Heft. 4. Die Verhältnisse der oesterreichischen Strafanstalten und der Gerichtsgefängnisse im Jahre 1883	The Imperial and Royal Central Statistical Commission
Band xii. Heft 1. Erläuterungen und Ergänzungen zu den Daten der Viehzählung vom 31 Dezember, 1880	
Hungary—	
Magyarország Aruforgalma Ausztriaval es mas Orszagokkal. (Trade Statistics) Dezember, 1885, Januar, 1886. 4to.	The Royal Hungarian Statistical Bureau
Statistisches Jahrbuch für Ungarn, 1884. Heft 4. Bergbau- und Hüttenwesen im Jahre 1884	
Ungarns Waarenverkehr mit Oesterreich und anderen Ländern . . . für das halbjahr 1885, vom Monate Juli bis ende Dezember. V Jahrgang. Fol.	
Budapest—	
Die Bauthätigkeit Budapest's in den Jahren 1875-84. La 8vo.	M. Joseph Kőrősi
Exposition Nationale de 1885 à Budapest. Catalogue Raisonné de l'Exposition du Bureau de Statistique de la Ville de—. 8vo. 1885	

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(a) **Foreign Countries**—*Contd.*	
Austria and Hungary—*Contd.*	
Bohemia—	
Beiträge zur Forst-Statistik von Böhmen. Maps. 8vo. 1885	The Administration of Lands and Forests, Prague
Mittheilungen des Comité für die Land- und Forstwirthschaftliche Statistik des Konigreiches Böhmen für das Jahr 1884. 8vo	
Ville de Prague. Bulletin hebdomadaire de la—, et des Communes-faubourgs. (Current numbers)	The Statistical Bureau of Prague
Belgium—	
Annales des Travaux Publics de Belgique. Tome xliii. 4e Cahier. Plans. 8vo. 1886	The Administration of Mines, Brussels
Ville de Bruxelles—	
Annuaire Démographique et Tableaux Statistiques des Causes de Décès. XXIVe année, 1885. Diagram. 8vo.	Dr. E. Janssens, Brussels
Bulletin hebdomadaire de Statistique Démographique et Medicale. (Current numbers)	
Chili—	
Estadistica Comercial de la República de Chile correspondiente al año de 1884. 8vo.	The Chilian Consul General, London
Memoria del Ministerio de Hacienda presentada al Congreso Nacional por el Ministro del Ramo en 1885. Plan. 8vo.	
Memoria del Ministro de Marina presentada al Congreso Nacional en 1885. 8vo.	
Sinopsis Estadistica y Geografica de Chile en 1884 y 1885. 2 parts, 8vo.	
The Republic of Chili. (Extracted from an Article in the American Cyclopædia.) 8vo. 1883	
China—	
Imperial Maritime Customs—	
I. Statistical Series, No. 2. Customs Gazette, No. 68, October—December, 1885	Sir Robert Hart, K.C.M.G.
III. Miscellaneous Series, No. 6. List of the Chinese Lighthouses, &c., for 1886. Diagrams. 4to	
Denmark. Nationalökonomisk Tidsskrift. Ny Række. Hefte 2, 3. 1886	The Danish Political Economy Society
Egypt. Report on the Finances of Egypt for 1885-86, by Mr. Edgar Vincent. La. 8vo.	Edgar Vincent, Esq.
France—	
Bulletin du Conseil Superieur de Statistique. No. 1. Session de 1885-86. La. 8vo.	The Ministry of Commerce, Paris
Bulletin Consulaire Français. Année 1886—	
Mars. (Reports, &c., relating to Austria-Hungary; Germany; and Tripoli)	
Avril. (Reports, &c., relating to Siam; *China*—Hankow; *Russia*—Finland; Japan; *United States*—New Orleans; *Sandwich Islands*—Honolulu; *Spain*—Santander; *Germany*—Dantzic, Nuremberg, Mayence)	

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France—*Contd.*	
Bulletin Consulaire Français. Année 1886—*Contd.*	
Mai. (Reports, &c., relating to *Greece*—Syra, the Cyclades; *Cape of Good Hope*—Port Elizabeth; St. Thomas; Germany; *Belgium*—Antwerp; *Spain*—Malaga; *United Kingdom*—Dover)	The Ministry of Commerce, Paris
Compte Général de l'Administration de la Justice Civile et Commerciale en France et en Algérie pendant l'année 1884. 4to.	The French Government
Compte Général de l'Administration de la Justice Criminelle en France et en Algérie pendant l'année 1884. 4to	
Ministère de l'Agriculture. Bulletin. V^e^ année, No. 2, 1886	The Ministry of Agriculture
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Mars-Mai, 1886	M. A. de Foville
Ministère des Travaux Publics. Bulletin du—. Statistique et Legislation Comparée. Mars, Avril, 1886	The Ministry of Public Works
Statistique de l'Enseignement Primaire. Tome second. Statistique Comparée de l'Enseignement Primaire (1829-77). Diagrams, 4to.	The French Government
Ville de Reims. Bulletin Mensuel du Bureau Municipal d'Hygiène. Mars, Mai, 1886.....	The Bureau of Hygiène
L'Economiste Français. (Current weekly numbers.) Paris	The Editor
Révue Bibliographique Universelle, Paris:—	
Partie Littéraire. Avril-Juin, 1886.....	"
,, Technique. Avril-Juin, 1886	
Révue Géographique Internationale. XI^e^ année, Nos. 123—125, 1886	"
Société de Statistique de Paris. Journal de la—, 1886—	
Avril. Situation financière de la Société. Les Petites communes en France et en Italie. Statistique sommaire de la Norvège. *Variétés.* Statistique minérale de la Russie. La Navigation de plaisance en France.....	The Society
Mai. Centenaire de 1889. Les Expositions universelles et la Statistique. La Production minerale des États-Unis. *Variétés.* La Production des Vins et des Cidres en 1885. Les Consommations des principales Villes de France	
Germany—	
Monatshefte zur Statistik des Deutschen Reichs. Februar—April, 1886.....	The Imperial Statistical Bureau
Prussia. Preussische Statistik. lxxxiv. Die Sterbefälle im preussischen Staate nach Todesursachen und Altersklassen der Gestorbenen sowie die Selbstmorde und Verunglückungen während des Jahres 1883	The Royal Statistical Bureau of Prussia
Berlin. Veröffentlichungen des Statistischen Amts der Stadt-. Eheschliessungen, Geburten, Sterbefälle, und Witterung. (Current weekly numbers)	The Statistical Bureau of Berlin
Frankfort. Statistische Mittheilungen über den Civilstand der Stadt Frankfurt-am-Main im Jahre 1885. 4to.	The Statistical Bureau of Frankfort

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(a) **Foreign Countries**—*Contd.*	
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Italy—	
Annali dell' Industria e del Commercio, 1886. Commissione centrale dei valori per le Dogane. Sessione 1885-86. 8vo.	
Bollettino Consolare, 1886—	
Febbraio. (Reports, &c, relating to the United States of Colombia; Australia; *France*—Bordeaux, Cette; *Egypt*—Suez Canal; Norway)	
Marzo. (Reports, &c., relating to Cyprus; *Austria*—Trieste; *Egypt*—Suez Canal; Goree; *Straits Settlements*—Singapore; *Russia*—Varsovie, Cronstadt, St. Petersburg, Batoom; *Turkey*—Beyrout; Eastern Roumelia; Malta)	
Aprile. (Reports, &c., relating to *Tunis*—Susa; Great Britain; *France*—Havre; Ireland; Roumania; *Egypt*—Ras Gimsah; Isthmus of Panama; *United States*—San Francisco; *Spain*—Cadiz; *Turkey*—Beyrout, Damascus, Serajevo)	The Director of the Bureau of General Statistics
Bollettino di Legislazione e Statistica Doganale e Commerciale. Gennaio e Febbraio, 1886	
Bollettino mensile delle Situazioni dei Conti degli Istituti d'Emissione. Anno XVII; Nos. 1—3, 1886	
Bollettino di Notizie sul Credito e la Previdenza. Anno IV, Nos. 6—10, 1886	
Bollettino Semestrale del Credito Cooperativo, Ordinario, Agrario e Fondiario. Anno III, 1° Semestre, 1885	
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Definitive Treaty of Peace and Friendship between his Britannick Majesty the Most Christian King and the States General of the United Provinces, concluded at Aix la Chapelle, the 18th day of October, N.S., 1748 . . . 65 pp., boards, sm. 4to. 1749	Thomas Beggs, Esq.
DERBY (WILLIAM, LORD BISHOP OF—). The Irish Historical Library, pointing at most of the Authors and Records in Print or Manuscript which may be serviceable to the Compilers of a General History of Ireland. xxxviii + 246 pp., cloth, 8vo. 1724	
DUNNE (CHARLES). Brand's Lunacy Case. A full report of this most Interesting and Extraordinary Investigation . . . vi + 131 pp., cloth, 8vo. 1831	
EGYPT. Reflections on the Natural Foundation of the High Antiquity of Government, Arts, and Sciences in Egypt. [Anon.] 22 pp., boards, 8vo. Oxford, 1743	
ERBEN (JOS.). Zpráva o jubilejnich sjezdech statistickych spolecnosti v Parizi a Londyne . . . 27 pp., cloth, 8vo. Prague, 1885	The Author
FERRARIS (CARLO F.). La Statistica nelle Università e la Statistica delle Università prolusione al Corso di Statistica letta nella R. Università di Padova addi 3 Dicembre, 1885. 39 pp., 8vo. Padova, 1886	"
Foreign Office List, 1886, forming a complete British Diplomatic and Consular Handbook, with Maps . . . 59th Publication. 8vo.	Messrs. Harrison and Sons
GIBSON (JOHN). The History of Glasgow, from the earliest accounts to the present time, with an Account of the Rise, Progress, and Present State of the different branches of Commerce and Manufactures now carried on in the City of Glasgow. viii + 391 pp., boards, 8vo. Glasgow, 1777	James T. Bell, Esq.

Donations—Contd.

Donations.	By whom Presented.
(d) **Authors, &c.**—*Contd.*	
Haggard (*F. T.*)— Our National Shop. Capital and Labour, Production and Consumption. 8 pp., 8vo. 1886 ... Demand and Supply *versus* Trading Theories. 14 pp., 8vo. 1886	The Author
Holiday Notes in East Anglia. [Anon.] 105 pp., illustrations, 12mo. 1886	W. Birt, Esq.
Hollingworth (Dr.). Defence of King Charles the First's Holy and Divine Book Eiken Basilika . . . 27 pp., sm. 4to., half calf. 1692	Thomas Beggs, Esq.
Howell (James). Familiar Letters on Important Subjects, wrote from the year 1618 to 1650. Tenth edition. iv + 480 + 8 pp., calf, 8vo. Aberdeen, 1753	James T. Bell, Esq.
Hutchinson (William). A Dissertation on Infanticide in its relations to Physiology and Jurisprudence. Second edition, 6 + 99 pp., boards, 8vo. 1821	Thomas Beggs, Esq.
Inama-Sternegg (Dr. Carl T.). Ueber Statistik. Vortrag gehalten im Niederosterreichischen Gewerbevereine. 18 pp., 8vo. Wien. 1886	The Author
James (R.). A Treatise on Canine Madness. vi + 264 pp., calf, 8vo. 1760 ... Jones (William). Practical Observations on Diseases of Women. xiv + 226 pp., boards, plates, 8vo. [1839]	Thomas Beggs, Esq.
Körösi (Joseph). Bulletin Annuel des Finances des Grandes Villes. VI^e^ année, 1882. 53 pp., la. 8vo. Budapest. 1885	The Author
Ladd (William). An Essay on a Congress of Nations for the Adjustment of International Disputes without resort to Arms . . . 192 pp., cloth, 8vo. Boston. 1840	Thomas Beggs, Esq.
Lee (Sir Joseph C.). The North-west Coast of Africa. 20 pp., 8vo. Manchester, 1886	The Author
Legal Means of Political Reformation, proposed in two small tracts, viz., the first on "Equitable Representation," and the legal means of obtaining it; the second on "Annual Parliaments, the Ancient and most Salutary Right of the People." [Anon.] Third edition. Boards, 59 pp., 8vo. 1780 ... Letter addressed to Two Great Men on the Prospect of Peace, and on the terms necessary to be insisted upon in the Negociation. [Anon.] 56 pp., boards, 8vo. 1760 ... Remarks on the Letter addressed to Two Great Men. Second edition. [Anon.] 64 pp., boards, 8vo. ... Letter from a Country Gentleman to a Member of Parliament on the Present State of Public Affairs, in which the object of the contending Parties and the following Characters are particularly considered, the Dukes of Norfolk, Portland, and Northumberland, the Houses of Devonshire and Russell, the Lords Thurlow, Camden, Loughborough, Kenyon, and North, Mr. Pitt, Mr. Fox, Mr. Burke, Mr. Sheridan, Mrs. Fitzherbert, and H.R.H. the Prince of Wales. [Anon.] Sixth edition. 79 pp., boards, 8vo. 1789 ... Lively Character of the Malignant Partie . . . [Anon.] 8 pp., half calf., sm. 4to. 1642	Thomas Beggs, Esq.

Donations—Contd.

Donations.	By whom Presented.
(d) **Authors, &c.**—*Contd.*	
Macleod (*Henry Dunning*)—	
The Elements of Economics. Vol. i and vol. ii, Part 1. Cloth, 8vo. 1881-86	
The Principles of Economical Philosophy. Second edition. Vol. ii, Part 1, completing Pure Economics. xiv + 522 pp., cloth, 8vo. 1875	The Author
The Theory and Practice of Banking. Fourth edition. Vols. i and ii. Cloth, 8vo. 1883-86	
Mandeville (Dr. Bernard).—The Fable of the Bees; or Private Vices, Public Benefits; with an Essay on Charity and Charity Schools, and a Search into the Nature of Society ... ix + 534 pp., half calf, 8vo. 1795	James T. Bell, Esq.
M'Kenna (Theobald). Political Essays relative to the Affairs of Ireland in 1791-92 and 1793, with Remarks on the Present State of that Country. lxiii + 226 pp., half calf, 8vo. 1794	Thomas Beggs, Esq.
Memoria Technica: or a New Method of Artificial Memory, applied to and exemplified in Chronology, History, Geography, Astronomy ... [Anon.] xviii + 119 pp., 8vo. 1730	James T. Bell, Esq.
Mead (Richard). A Discourse on the Plague. Ninth edition, corrected and enlarged. 6 + xl + 164 pp., calf, 8vo. 1744	Thomas Beggs, Esq.
Moore (W. F.). Lecture on Mortality Statistics, with special reference to those relating to Preston. 12 pp., 8vo. Preston. 1886	The Author
Nedham (Marchamont). The Excellencie of a Free State. xxviii + 176 pp., half calf, 8vo. 1767	
People's Charter, being the Outline of an Act to provide for the Just Representation of the People of Great Britain in the Commons' House of Parliament. [Anon.] 36 pp., half calf, sm. 8vo., plan	Thomas Beggs, Esq.
Phillips (Charles). Vacation Thoughts on Capital Punishments. 120 pp., 8vo. 1857	James T. Bell, Esq.
Platt (James). Land. 208 pp., cloth, 8vo. 1886	The Author
Political Pamphlets. (10 in 1 vol.) Boards, 8vo. 1721-31	
1. Sedition and Defamation Display'd. [Anon.] 1731	
2. A Proper reply to a late Scurrilous Libel intitled Sedition and Defamation Displayed by Caleb D'Anvers. 1731	
3. The Case of the Hessian Forces in the pay of Great Britain ... [Anon.] 1731	
4. Considerations on the present State of the Affairs in Europe ... [Anon.] 1730	
5. A Defence of the Measures of the present Administration ... Second edition. [Anon.] 1731	Thomas Beggs, Esq.
6. Remarks on a Pamphlet entitled a Defence of the Measures of the present Administration. [Anon.] 1731	
7. Some Considerations concerning the Publick Funds, the Publick Revenues, and the Annual Supplies granted by Parliament. Second edition. [Anon.] 1735	
8. A Collection of all the Political Letters in the "London Journal" to December 17th inclusive, 1720. [Anon.] 1721	

Donations—Contd.

Donations.	By whom Presented.
(d) **Authors, &c.**—*Contd.*	
Political Pamphlets—Contd.	
9. An Enquiry into the Reasons of the conduct of Great Britain with relation to the present State of Affairs in Europe. [Anon.] 1727	
10. Three Political Letters to a Noble Lord concerning Liberty and the Constitution by Mr. Gordon. Second edition, corrected. 1721	Thomas Beggs, Esq.
Poor. Particular Answers to the most material objections made to the Proposal humbly presented to His Majesty for relieving, reforming, and employing all the Poor of Great Britain. [Anon.] x + 104 + 19 pp., calf, 8vo. 1722	
Porter (G. R.). The Nature and Properties of the Sugar Cane, with practical Directions for the Improvement of its Culture, and the Manufacture of its Products. Second edition, with an additional chapter on the Manufacture of Sugar from Beet-root. xiv + 240 pp., plates. 8vo. 1843.....	H. Ling Roth, Esq.
Quain (Richard). The Healing Art in its Historic and Prophetic Aspects. The Harveian Oration . . . 1885. Second edition. 44 pp., cloth, 8vo. 1886	The Author
Reeves (John). Thoughts on the English Government. Addressed to the quiet good sense of the People of England, in a series of Letters supposed to be by—. 80 pp., half calf, 8vo. 1795	Thomas Beggs, Esq.
Reyes (Rafael). Nociones de Historia del Salvador precedidas de un resumen de Historia Universal. 645 pp. (in 2 vols.). 12mo. San Salvador. 1885	The Author
Roth (H. Ling)—	
Addenda and Index to the "Animal Parasites of the Sugar Cane." 4 pp., 8vo. Manchester. 1886.....	
Professor Alphonse de Candolle on the Origin of the Sugar Cane . . . 8 pp., 8vo. 1886	"
Selkirk (Earl of). Observations on the Present State of the Highlands of Scotland, with a view of the Causes and Probable Consequences of Emigration. Second edition. vii + 232 + lxi pp., boards, 8vo. Edinburgh. 1806	James T. Bell, Esq.
Somers (Lord). The Judgment of Whole Kingdoms and Nations concerning the Rights, Power, and Prerogative of Kings, and the Rights, Priviledges, and Properties of the People. 4 + 71 pp., calf, 8vo. 1713	Thomas Beggs, Esq.
Steinau (Julius H.). A Pathological and Philosophical Essay on Hereditary Diseases, with an Appendix . . . iv + 52 pp., half calf, 8vo. 1843	
Symmons (Edw.). A Vindication of King Charles, or a Loyal Subject's Duty . . . 22 + 312 + 6 pp., boards, sm. 4to. 1648.....	James T. Bell, Esq.
Tait (P. M.). Vital and other Statistics of Eastbourne, illustrative of its Health and Climate. 4 pp., 8vo. [1885]	The Author
Tooke (Thomas). Considerations on the State of the Currency. iv + 152 pp., boards, 8vo. 1826	Thomas Beggs, Esq.
Vindication of the Case relating to the Greenwar-Fines showing how the Rights and Prerogative of the Crown are diminished, Officers enriched, and the Subjects oppressed by the mismanagement of that Revenue . . . [Anon.] 11 + 99 pp., 12mo. 1684.....	James T. Bell, Esq.

Donations—Contd.

Donations.	By whom Presented.
(d) **Authors, &c.**—*Contd.*	
Walras (Léon). Théorie de la Monnaie. 24 pp., fol. Paris. 1886	The Author
Watson (William). Accidents in Mine Shafts. A Practical Plea for Miners. Revised edition. 15 pp., 8vo. 1886	,,
Wolff (Captain M. P.). On the Rational Alimentation of the Labouring Classes, with an Alimentation Table. 60 pp., diagram, 12mo. 1886	,,
Woolston and Beeton's Statistical Chart of British Railways, 1885. Diagram 1, showing percentage of gross Receipts, Net Revenue, and Ordinary Dividend to paid up Capital; also the amount of Capital in millions. Diagram 2, showing proportion of Ordinary to Fixed Capital, and proportion of Net Revenue appropriated to each. Diagram 3, showing cost of Railway per mile, and amount of Ordinary Capital per mile in thousands. Diagram 4, showing proportion of Passenger to Goods Traffic Receipts. Sheet	Messrs. Woolston and Beeton
(e) **Societies, &c.**	
Arts, Society of—. Journal of the—. Current numbers. 1886	The Society
British Iron Trade Association. Annual Statistical Report . . . on the Home and Foreign Iron and Steel Industries in 1885. 8vo.	The Association
Crédit Lyonnais. Bulletin Financier et Commercial. No. 215. 4to. 1886	J. Rabino, Esq.
East India Association. Journal of the—. No. 4. 1886	The Association
Glasgow, Mitchell Library. Report on the—, for 1885. 8vo.	The Librarian
Institut International de Statistique. Bulletin de l'—. Tome i, 1e et 2e Livraisons (in 1 vol.), année 1886. (Contents.) La fondation de l'Institut international de statistique, aperçu historique. Report (abridged) of the Proceedings and Papers read at the Jubilee Meeting of the Statistical Society of London, 22—24th June, 1885. La Popolazione di Roma antica. La Statistique de la division de la propriété en France et dans la Grande-Bretagne. Sul valore della proprietà fondiaria rustica e sulla gravezza delle imposte che la colpiscono in alcuni Stati. Die Entwickelung des Clearing-Verkehres, eine vergleichende Statistische Studie. International Statistics, illustrated by Vital Statistics of Europe and of some of the United States of America, being Extracts from the Address of Sir R. W. Rawson, K.C.M.G., C.B. . . . Della composizione della popolazione per sesso e per età in Italia ed in alcuni Stati esteri. Dell' emigrazione dall' Italia comparata a quella che avviene da alcuni altri Stati europei. Confronti internazionali sull' istruzione elementare della popolazione. Proposte per una Statistica internazionale degli alienati . . . Vingt-cinquième anniversaire de la Société de Statistique de Paris. Compte-rendu sommaire des réunions. Bulletin Bibliographique. Annonce des publications recentes. Chronique de l'Institut International de Statistique. Diagrams, la. 8vo. Rome. 1886	The Director of the Bureau of General Statistics, Rome

JOURNAL OF THE STATISTICAL SOCIETY,

SEPTEMBER, 1886.

REPORT *of the* COUNCIL *for the* FINANCIAL YEAR *ended* 31*st December*, 1885, *and for the* SESSIONAL YEAR *ending* 29*th June*, 1886, *presented at the* FIFTY-SECOND ANNUAL MEETING *of the* STATISTICAL SOCIETY *held at the Society's Rooms*, 9, *Adelphi Terrace, Strand, London, on the* 29*th of June*, 1886.

The PRESIDENT, SIR RAWSON W. RAWSON, K.C.M.G., C.B., *in the Chair.*

THE Circular convening the Meeting having been read, and the Minutes of the last Ordinary Meeting read and confirmed, the following Report was taken as read, the President proposing to advert to the subjects of chief interest in it:—

Report of the Council.

The Council have the honour to submit their fifty-second annual report.

The results compare as follows with the average of the previous ten years:—

Particulars.	1885.	Average for the Previous Ten Years.
Number of Fellows on 31st December	928	760
Life Members included in the above	148	120
Number lost by death, withdrawal, or default	55	47
New Fellows elected	74	79

Since the 1st of January last, 49 new Fellows have been elected.

The financial condition of the Society continues to be satisfactory. The following table gives, for purposes of comparison, the different sources of ordinary income for the year 1885, together with the same particulars for the previous five years:—

Receipts per	1885.	1884.	1883.	1882.	1881.	1880.	Average for the Five Years previous to 1885.
	£	£	£	£	£	£	£
Dividends	73	88	102	94	88	75	89
Annual Subscriptions	1,462	1,447	1,361	1,291	1,306	1,317	1,344
Compositions	63	294	126	189	84	273	193
Journal sales	188	207	150	227	145	202	186
Advertisements in Journal	26	19	35	37	26	35	30
Miscellaneous refunds	—	86	4	—	—	—	—
	1,812	2,139	1,778	1,838	1,649	1,902	1,842
Legacy of Dr. Guy	250	—	—	—	—	—	—
Mr. Pochin, for Newmarch Memorial Essay	—	—	—	100	—	—	—
Sale of 1,000*l.* New 3 per Cent. Stock	—	1,007	—	—	—	—	—
	2,062	3,146	—	1,938	—	—	—

On the other hand, the expenditure has been as follows:—

Expenditure for	1885.	1884.	1883.	1882.	1881.	1880.	Average for the Five Years previous to 1885.
	£	£	£	£	£	£	£
Rent, rates, and taxes	310*	56	80	83	69	81	73
Maintenance, including fire, water, repairs, and furniture	88	—	77	56	79	41	50
Salaries and pension	392	394	381	362	322	340	359
Advertising, postage and delivery of Journals, stationery, and sundry printing	241	248	222	191	185	189	207
Expenses of ordinary meetings	23	24	32	26	24	27	26
Journal	625	645	585	553	609	573	593
Library	27	38	49	60	37	80	52
Miscellaneous	50	65	61	54	54	50	56
	1,756	1,470	1,487	1,385	1,379	1,381	1,416
Alteration of meeting room, King's College	—	—	—	—	—	114	—
Catalogue and Index to Library	247	392	128	153	—	—	—
Newmarch Memorial Fund	—	—	—	21	—	—	—
Removing to 9, Adelphi Terrace	67	1,202	—	—	—	—	—
Newmarch Memorial Prize Essay. Received in 1882 from Mr. Pochin	100	—	—	—	—	—	—
Howard Medal Prize Essays	—	23	20	22	21	22	—
	2,170	3,087	1,635	1,581	1,400	1,517	—

* Of this sum about 11*l.* belongs to the expenditure of 1884.

A comparison of the principal figures at intervals of ten years in the following table, will show the progress of the Society from an early date :—

Comparison of the Condition of the Society at Intervals of Ten Years, on 31st December.

Year.	Number of Fellows.	Ordinary Income.	Expenditure.	Amount Invested.	Liabilities.	Assets over Liabilities.	Year.
		£	£	£	£	£	
1835	398	796	873	567	—	842	1835
'45	415	919	1,003	867	90	1,013	'45
'55	377	890	932	867	166	853	'55
'65	367	921	794	957	105	1,874	'65
'75	607	1,231	1,733	1,207	216	2,135	'75
'85	928	1,812	2,170	2,500	1,169	3,791	'85

The following table gives the particulars for each year of the last decade :—

Year.	Number of Fellows.	Ordinary Income.	Expenditure.	Amount Invested.	Liabilities.	Assets over Liabilities.	Year.
		£	£	£	£	£	
1876	611	1,438	1,340*	1,207	187	3,464	1876
'77	683	1,597	1,286	1,398	201	3,763	'77
'78	746	1,732	1,345	1,902	168	4,147	'78
'79 ...	783	1,698	1,427	2,283	238	4,433	'79
'80	808	1,902	1,517†	2,572	214	4,614	'80
'81	807	1,649	1,400	2,869	192	4,935	'81
'82	786	1,838	1,581‡	3,071	203	5,240	'82
'83	860	1,778	1,635‡	3,500	347	5,246	'83
'84	909	2,139	3,087*‡	2,500	968	4,188	'84
'85	928	1,812	2,170*‡§	2,500	1,169‖	3,791	'85

* Affected by expenses incident to moving into new premises.

† Affected by the expenses attending the alteration and redecoration of the meeting room at King's College.

‡ Affected by expenses attending the preparation of the new Catalogue and Index to the library.

§ Includes 100*l.* given by Mr. H. D. Pochin for the Newmarch Memorial Prize Essay.

‖ Includes the estimated cost of the Jubilee volume, the volume of Index to the Catalogue of the library, and the Charter.

The averages of the annual sales of the Society's *Journal* are as follows:—

	£
For the ten years 1841-50	56
„ '51-60	83
„ '61-70	97
„ '71-80	155
For the last five years '81-85	183

The Opening Address of the President was given on the re-assembling of the Society in November, and the papers read and the members elected at each of the monthly meetings were as follows:—

Session 1885-86.

First Ordinary Meeting, Tuesday, 17th November, 1885.

The President, Sir Rawson W. Rawson, K.C.M.G., C.B., in the Chair.

The following were elected Fellows:—

Thomas Aitken.
John Antonio.
Richard Ambrose Balfe.
Thomas Barratt.
Rev. Canon William Lewery Blackley, M.A.
The Hon. Henry A. Bovell, LL.B.
Stephen Burridge.
Madgwick Spicer Davidson.
Emile Conrad de Bichin de Broë.
Ronald Crawfurd Munro Ferguson, M.P.
George S. Gibb.
John Oldham.
John Rae.
Alderman William Roper.
James Henry Scott.
William Lewis Simner.
William Turner.
Frederick James Vincent.
Captain M. P. Wolff.

The President delivered an Opening Address on "International "Statistics, illustrated by Vital Statistics of Europe and of some "of the United States of America."

Second Ordinary Meeting, Tuesday, 15th December, 1885.

The President, Sir R. W. Rawson, K.C.M.G., C.B., in the Chair.

The following were elected Fellows:—

Thomas Henry Elliott.
Major William G. Fitzgerald, M.A.
David Henry Goodsall, F.R.C.S.
Thomas R. Grant.
The Rev. Goodeve Mabbs.
Marshall Stevens.

Mr. Thomas Scrutton read a Paper on "The Preventible Loss "of Life at Sea."

Third Ordinary Meeting, Tuesday, 19th January, 1886.

The President, Sir R. W. Rawson, K.C.M.G., C.B., in the Chair.

The following were elected Fellows:—

Ferdinand Faithfull Begg.
Abraham Burrows, J.P.
W. Ernest Bush, F.C.S.
George Goudie Chisholm, M.A.
William Beckett Denison, M.P.
Arthur Lemoine Denman.
John Edward Ellis, M.P.
Henry H. Fowler, M.P.
George Pargiter Fuller, M.P.
Colin Mackenzie.
Augustus Sauerbeck.
Robert Wilson.

Mr. Robert Giffen, LL.D., read a Paper, "Further Notes on "the Progress of the Working Classes in the Last Half Century."

Fourth Ordinary Meeting, Tuesday, 16th February, 1886.

The President, Sir R. W. Rawson, K.C.M.G., C.B., in the Chair.

The following were elected Fellows:—

William George Ainslie, M.P.
Charles John Anderson.
Gerald William Balfour, M.P.
Sidney Ball, M.A.
Henry Fitzgerald Bernard.
John Tomlinson Brunner, M.P.
Richard Chamberlain, M.P.
Edward Crispin.
Henry Richard Glyn.
Harry St. Aubyn Goodrich.
Frederick William Grafton, M.P.
H. F. Hibbert.
R. G. C. Mowbray.
Rev. Lancelot Ridley Phelps, M.A.
Joseph Pulley, M.P.
Alderman Samuel Storey, M.P.

Dr. William Ogle, M.A., F.R.C.P., read a Paper on "Suicides "in England and Wales in Relation to Age, Sex, Season, and "Occupation."

Fifth Ordinary Meeting, Tuesday, 16th March, 1886.

The President, Sir R. W. Rawson, K.C.M.G., C.B., in the Chair.

The following were elected Fellows:—

The Rt. Hon. the Earl of Dundonald.
The Rt. Hon. Viscount Grimston, M.P.
E. J. Hardcastle.
James Pain.
Frederick Rawlins.
Frederick Du Frocq Shaw.
Thomas Westhead.

The undermentioned was elected an Honorary Member:—

His Excellency Señor Don Carlos Ibañez é Ibañez de Ibero, of Spain.

Mr. Stephen Bourne read a Paper on "Foreign and Colonial "Tariffs as influencing Prices and affecting Trade."

Sixth Ordinary Meeting, Tuesday, 20th April, 1886.

The President, Sir R. W. Rawson, K.C.M.G., C.B., in the Chair.

The following were elected Fellows:—

Alfred Ashworth.	Basil William Hardcastle.
W. E. Barker, B.A.	John Gordon Kennedy.
Stanley G. Bird.	Sir Joseph C. Lee.
Sir John Coode, C.E.	Stephen Mason, M.P.
Oswald R. Green.	Herman Alfred Roechling.

W. S. C. Shaw.

Professor Leone Levi read a Paper on "The Progress of Joint "Stock Companies with Limited and Unlimited Liability in the "United Kingdom, during the Fifteen Years 1869-84." (In continuation of a Paper read before the Society in January, 1870.)

Seventh Ordinary Meeting, Tuesday, 18th May, 1886.

The President, Sir R. W. Rawson, K.C.M.G., C.B., in the Chair.

The undermentioned was elected a Fellow:—

William Henry Bretnall.

Mr. Charles Booth read a Paper on "Occupations of the People "of the United Kingdom, 1801-81."

Eighth Ordinary Meeting, Tuesday, 22nd June, 1886.

The President, Sir R. W. Rawson, K.C.M.G., C.B., in the Chair.

The following were elected Fellows:—

Alfred Bayly | Thomas Hesketh Biggs.

The undermentioned was elected an Honorary Member:—

J. E. O'Conor, Esq., of the Department of Finance and Commerce, Calcutta.

A Paper by the Hon. Sir Robert Stout, K.C.M.G., Premier of New Zealand, "Notes on the Progress of New Zealand for Twenty "Years, 1864-84," was read by Sir Francis D. Bell, K.C.M.G., in the unavoidable absence of the author.

The Council have much pleasure in reporting that the number of Fellows of the Society continues to increase, the total being now 941 against 930 at the date of their last Report. At the same time they would urge on all Fellows of the Society the importance

of using their best efforts to increase still farther the numerical strength of the Society, and so to augment its efficiency in advancing the purposes for which it was instituted.

The sources of the Society's income in 1885 have been of a normal character, with the exception of a legacy of 250*l.* bequeathed by the late Dr. Guy. The expenditure, on the other hand, has been unusually heavy, partly in consequence of expenses incidental to the change of premises, and partly owing to expenses connected with the printing of the Library Catalogue, and the preparation of the Index to it.

The question as to the liability of the Society for rates under the Act 6 and 7 Vict., cap. 36, has now been settled by the Assessment Committee. It has been decided that the rating of the Society for parochial purposes shall be upon the annual assessment of 200*l.* instead of 358*l.* at which it was originally fixed. The Society thus pays rates for that portion only of the premises which it sub-lets. The Council report with pleasure that their present premises continue to be shared by the Institute of Actuaries and the Institute of Chemistry as before.

Permission to hold the Ordinary Meetings of the Society in the Theatre of the School of Mines in Jermyn Street has been continued to the Society through the courtesy of the Education Department. The Council are of opinion that the thanks of the Society are due to the Lords of the Committee of Council on Education for the accommodation thus placed at its disposal.

The Council have great pleasure in reporting the completion of the Index to the Library Catalogue, and that they will shortly be able to distribute it to the Fellows. They wish to express their thanks to the Library Committee for having completed this indispensable adjunct to the Catalogue, and they have particularly to acknowledge the constant attention devoted to the preparation of the Index by the President personally. At the same time they deeply regret to have to record the death of Mr. T. D. Halley, which occurred when the Index on which he had been especially engaged was on the point of completion. The Council have awarded a gratuity of 25*l.* to the family of Mr. Halley. It is proposed that the Index be brought up to the present time by special labour, and that hereafter it be kept up to date by the ordinary staff of the Society.

The celebration of the Society's Jubilee, held at the time of the presentation of last year's Report, was carried out in a manner which has proved to have given great satisfaction to the delegates of foreign countries and the other guests of the Society, and to have increased the reputation and prestige of the Society. The proceedings of the Jubilee are contained in the Jubilee Volume,

together with all the papers contributed to its business meetings, and a list of all papers read before the Society from its commencement. The liberality of the Fellows provided the Council with funds to defray all expenses in connection with the Jubilee Meeting, and to carry over a balance of 66*l.* 18*s.* to the funds of the Society in reduction of the cost of the Jubilee Volume.

The International Statistical Institute, founded on the last day of the Jubilee, has completed its organisation, and it is hoped that its success in the future will give further ground to the Society for satisfaction with the result of their Jubilee Meeting. The President of the Statistical Society, Sir Rawson W. Rawson, was nominated as its first President. The first number of its quarterly "Bulletin" has already been published in Rome. Its constitution and regulations, with a list of its original members, will be found in the Jubilee Volume.

The Council were invited by the British Association for the Advancement of Science to express their opinion as to the practicability of establishing an International Scientific Association. The Council in reply pointed out that the proposed International Statistical Institute would in fact form a section of such an organisation, and that it might be well to observe the result of this experiment before expressing an opinion as to the feasibility of the more extended scheme.

The meeting of the British Association in 1885 was held at Aberdeen, where the Society was as usual well represented, and papers were read by the following Fellows of the Society: Professor Henry Sidgwick, M.A. (President of Section F); Major Craigie (Vice-President), Mr. A. E. Bateman, Mr. Stephen Bourne, Sir George Campbell, K.C.S.I., M.P.; Mr. Hyde Clarke; the Rev. W. Cunningham, M.A.; Mr. F. Y. Edgeworth, M.A.; Dr. W. A. Hunter, M.P.; Professor Leone Levi, LL.D.; Mr. M. G. Mulhall; the late Mr. Cornelius Walford, F.I.A.; Mr. W. Watt, and Mr. W. Westgarth.

Application has been made to the Trustees of the British Museum for a copy of their general catalogue, and the Council hope that this application may be favourably considered.

It having been determined that it would be for the advantage of the Society to obtain incorporation under a Royal Charter, a committee, consisting of Mr. A. H. Bailey, Mr. F. H. Janson, Mr. F. G. P. Neison, and the Executive Committee, was appointed. A draft charter was prepared by Messrs. Janson, Cobb, Pearson, and Co., and is now under the consideration of the Privy Council.

A special committee, consisting of Mr. Noel A. Humphreys, Major Craigie, Mr. J. S. Jeans, Mr. F. G. P. Neison, Mr. R. Price-Williams, and the Executive Committee, was appointed in July,

1885, to consider and adopt the best means of securing a supply of good papers for the ensuing session. The committee reported that it was desirable that certain subjects should be selected in advance annually, and endeavours made to obtain papers thereon from competent writers. The question of inviting papers on economic subjects as distinguished from those treated by the strictly numerical method of statistics, has also been under consideration on the motion of Mr. Hyde Clarke.

The Society has to lament the deaths of the following members :—

Fellows.

c d The Right Hon. Lord Borthwick.
Faithful Cookson, Esq., F.R.G.S.
John Green Elsey, Esq., J.P.
*Dr. D. Manson Fraser, M.A.
p (39) *c d* Dr. William A. Guy, F.R.S., F.R.C.P.
(*A Past President.*)
Stewart Helder, Esq., F.I.A.
d The Hon. Sir Francis Hincks, K.C.M.G., C.B.
p (3) *c* William Barwick Hodge, Esq., F.I.A.
(*An Original Member.*)
c The Right Hon. Lord Houghton, D.C.L., F.R.S.
(*A Past President.*)
d William Hoyle, Esq.
d Mrs. Lovegrove.
William Jones Loyd, Esq., J.P.
John Messent, Esq., F.I.A.
d His Highness Ráma Varmá, Bahadoor, G.C.S.I., Maharaja of Travancore.
Colonel Charles Ratcliff, J.P.
c d The Right Hon. The Earl of Shaftesbury, K.G.
(*A Past President*).
Francis Turner, Esq.
p (7) *c d* Cornelius Walford, Esq., F.I.A., &c.
William Wilcox, Esq., M.R.C.S., L.R.C.P. (Edin.).

Honorary Member.

d M. Alfred Legoyt (France).

* Howard Medal Prize Essayist (1882).
c Indicates those who on one or more occasions had served on the Council.
d Indicates those who had been Donors to the Library.
p Indicates those who had contributed Papers, with the numbers respectively contributed.

By the death of Dr. Guy the Society has lost one of its oldest and most assiduous supporters. The Council, on receiving the announcement of his death, caused a letter of regret and condolence to be addressed to Mrs. Guy; and at the Ordinary Meeting of the 15th December, the President proposed, and Mr. James Heywood seconded, the following resolution, which was carried unanimously:—

"That the Statistical Society desires to place on record its "deep regret at the loss which it has sustained by the death of "the late

"William Augustus Guy, Esq., M.B., F.R.C.P., F.R.S.

"whose services to the Society extended over an uninterrupted "period of forty-six years, namely, from 1839 to 1885.

"Dr. Guy was a Member of Council from 1841, during which "period he fulfilled the duties of Honorary Secretary (1843-68), "Editor of the *Journal* (1852-56), Vice-President (1869-72), and "President (1873-75).

"Dr. Guy was a constant and liberal donor to the Library; "and the numerous papers which he read before the Society, "exceeding in number and variety of subjects those of any other "Fellow, as shown in the Jubilee volume, were of exceptional "value. He further testified to his constant interest in the pros- "perity of the Society by the large number of Fellows whom he "introduced to it, and finally by bequeathing to it a legacy of "250*l.* and a reversionary interest of very considerable value."

Mrs. Guy has since presented to the Society a bust of her late husband, and the cordial thanks of the Council on behalf of the Society were tendered to Mrs. Guy for this valued gift.

It will be observed that the above list of deceased members includes an unusual number of eminent and valued Fellows of the Society, among whom may also be specially mentioned the Earl of Shaftesbury, Lord Houghton, and Mr. Cornelius Walford, the latter in particular having for many years been constant in his attendance both at the ordinary and the Council meetings.

The Portrait of the late Mr. G. R. Porter has been presented to the Society by his daughters.

Mrs. Lovegrove has bequeathed to the Society a legacy of 100*l.*, subject to the life interest of one of her surviving relatives.

The following list of Fellows proposed as President, Council, and Officers of the Society for the Session 1886-87 is submitted for the consideration of the meeting:—

Council and Officers for 1886-87.

PRESIDENT.

*THE RIGHT HON. GEORGE J. GOSCHEN, M.P.

COUNCIL.

George Baden-Powell, C.M.G., M.P.
Arthur H. Bailey, F.I.A.
T. Graham Balfour, M.D., F.R.S.
Alfred Edmund Bateman.
Stephen Bourne.
J. Oldfield Chadwick, F.R.G.S.
Hammond Chubb, B.A.
Hyde Clarke.
Lionel Louis Cohen, M.P.
Major Patrick George Craigie.
*Francis Y. Edgeworth, M.A.
Professor H. S. Foxwell, M.A.
Frederick Brooksbank Garnett, C.B.
Rowland Hamilton.
Frederick Hendriks, F.I.A.
Noel A. Humphreys.
Frederick Halsey Janson, F.L.S.
James Stephen Jeans.
*Charles Malcolm Kennedy, C.B.
Robert Lawson, LL.D.
Professor Leone Levi, LL.D.
George Blundel Longstaff, M.A., M.B.
John Biddulph Martin, M.A.
Richard Biddulph Martin, M.A.
Frederic John Mouat, M.D., F.R.C.S.
Francis G. P. Neison, F.I.A.
*William Ogle, M.A., M.D., F.R.C.P.
R. Price-Williams, M.Inst. C.E.
*William Rathbone, M.P.
*Sir B. Samuelson, Bart., M.P., F.R.S.

Those marked * are new Members of Council.

TREASURER.

Richard Biddulph Martin, M.A.

SECRETARIES.

John Biddulph Martin, M.A. | Alfred Edmund Bateman.
George Baden-Powell, C.M.G., M.P.

FOREIGN SECRETARY.

John Biddulph Martin, M.A.

APPENDIX.

In the report of the Council for the session 1864-65 (vol. xxviii, pp. 233—235), a list was given of the papers read and published during the ten preceding years; a similar list was given in the report of the Council for the session 1875-76 (vol. xxxix, pp. 450—455); and after an interval of ten years the Council consider it desirable to adopt a similar course with their present report. The papers read during the last ten years are arranged in the same manner and classified under the same heads as in the previous cases above referred to, viz.:—

(*a*). Commercial Statistics.
(*b*). Industrial Statistics.
(*c*). Financial Statistics.
(*d*). Moral and Social Statistics.
(*e*). Political Statistics.
(*f*). Vital Statistics.
(*g*). Miscellaneous Statistics.

From this list, which is subjoined, it will be seen that there are few branches of statistical inquiry which have not been considered by the Society.

a. Commercial Statistics—		Vol. of Journal for
The Statistical Results of the Treaties of Commerce and their Relation to the Balance of Trade	Prof. Leone Levi, F.S.A.	1877
The Growing Preponderance of Imports over Exports in the Trade of this Country	Stephen Bourne	1877
What are the Conditions on which the Commercial and Manufacturing Supremacy of Great Britain depend, and is there any reason to think they have been or may be endangered?	A. J. Mundella, M.P.	1878
The Progress of the Foreign Trade of the United Kingdom since 1856, with Especial Reference to the Effects produced upon it by the Protectionist Tariffs of other Countries..	W. Newmarch, F.R.S.	,,
The Tonnage Statistics of the Decade 1870-80: a Sequel to two previous Papers on the Decades 1850-60 and 1860-70	J. Glover	1882
The Use of Import and Export Statistics	Robert Giffen	,,
Foreign and Colonial Tariffs as Influencing Prices and Affecting Trade	Stephen Bourne	1886

		Vol. of Journal for
b. Industrial Statistics—		
Ten Years' Statistics of British Agriculture, 1870-79	Captain P. G. Craigie	1880
On Home Produce, Imports, Consumption, and Price of Wheat over the Harvest Years 1852-53 to 1879-80	J. B. Lawes, LL.D., F.R.S., F.C.S., and J. H. Gilbert, Ph.D., F.R.S., F.C.S.	,,
The Industrial Resources of Ireland	G. Phillips Bevan, D.L., F.G.S.	1881
Statistics of Agricultural Production	Major P. G. Craigie	1883
On the Comparative Efficiency and Earnings of Labour at Home and Abroad	J. S. Jeans	1884
Occupations of the People of the United Kingdom, 1801-81	Charles Booth	1886
c. Financial Statistics—		
International Statistics of Savings Banks	E. W. Brabrook, F.S.A.	1877
Diagrams Exhibiting the Positions of the Bank of England, the Bank of France, the German Reichsbank, the National Bank of Austria, the Netherlands Bank, the National Bank of Belgium, the National Bank of Italy, and the State Bank of Russia; with Remarks thereon and References to the Note Issue System of the Bank of England	Ernest Seyd	1878
Recent Accumulations of Capital in the United Kingdom	Robert Giffen	,,
On the Debts of Sovereign and Quasi-Sovereign States	Hyde Clarke	,,
On the Fall of Prices of Commodities in Recent Years	Robert Giffen	1879
Some Phases of the Silver Question	Stephen Bourne	,,
Some Effects of a Crisis on the Banking Interest	John B. Martin, M.A.	,,
Is the Value of Money Rising in England and Throughout the World? with Remarks on the Effects of the Fluctuating Condition of Trade upon the Value of Money	R. H. Patterson	1880
Statistics of the Revenue of the United Kingdom from 1859-82 in Relation to the Distribution of Taxation	Prof. Leone Levi, F.S.A., LL.D.	1884
The Progress of Joint Stock Companies with Limited and Unlimited Liability in the United Kingdom during the Fifteen Years 1869-84	,,	1886
d. Moral and Social Statistics—		
Some Statistics of the Affiliated Orders of Friendly Societies (Odd Fellows and Foresters)	F. G. P. Neison	1877
On the Geographical Distribution of the Celtic Speaking Population of the British Isles	E. G. Ravenstein, F.R.G.S.	1879
The Feasibility of Compulsory Education in Ireland	Dr. W. Neilson Hancock	,,
The Strikes of the Past Ten Years	G. Phillips Bevan, F.G.S.	1880

d. Moral and Social Statistics—*Contd.*		Vol. of Journal for
A Survey of Indictable and Summary Jurisdiction Offences in England and Wales from 1857 to 1878	Prof. Leone Levi, F.S.A., LL.D.	1880
The Education and Training of the Children of the Poor	Dr. F. J. Mouat, F.R.C.S.	,,
The National Expenditure upon Alcohol	Stephen Bourne	1882
Education in India, and the India Commission on Education	Rev. James Johnston	1883
Popular Education in England and Wales before and after the Elementary Education Act of 1870	Rowland Hamilton	,,
The Progress of the Working Classes in the Last Half Century. Inaugural Address of the President	Robert Giffen, LL.D.	,,
The Relation of the State to Thrift; Ten Years' Statistics of Friendly Societies and similar Institutions	E. W. Brabrook, F.S.A., F.R.S.L.	1885
Further Notes on the Progress of the Working Classes in the Last Half Century	Robert Giffen, LL.D.	1886

e. Political Statistics—		
The Recent Economic Progress of New Zealand	Archibald Hamilton	1877
The Cost of English Local Government	Captain P. G. Craigie	,,
On the Colony of Victoria: its Progress and Present Position	H. H. Hayter	1879
A Note on the Tenth Census of the United States of America	Dr. F. J. Mouat, F.R.C.S.	1880
Methods of Electing Representatives	H. R. Droop	1881
The History and Statistics of the Irish Incumbered Estates Court, with Suggestions for a Tribunal with Similar Jurisdiction in England	R. Denny Urlin	,,
The President's Inaugural Address on the British Land Question	James Caird, C.B., F.R.S.	,,
The Economic Progress of Italy during the Last Twenty Years: since the Formation of the Italian Kingdom in 1861	Prof. Leone Levi, F.S.A., LL.D.	1882
The Parliamentary Representation of the Metropolitan, Agricultural, and Manufacturing Divisions of the United Kingdom: with Suggestions for its Redistribution	Arthur Ellis	1883
Electoral Statistics: a Review of the Working of our Representative System from 1832 to 1881, in view of Prospective Changes therein	John B. Martin, M.A.	1884
A Statistical Review of Canada, including its Confederated Provinces	Cornelius Walford, F.I.A.	,,
Some Egyptian Statistics	Joseph Rabino	,,
The President's Inaugural Address on "British and Foreign Colonies"	Sir R. W. Rawson, K.C.M.G., C.B.	,,
On the Extent to which Recent Legislation is in accordance with, or deviates from, the True Principles of Economic Science; and showing the Permanent Effects which may be expected to arise from such Legislation. (An abridgment of the Newmarch Memorial Prize Essay)	William Watt	1885
Notes on the Progress of New Zealand for Twenty Years, 1864-84	Hon. Sir Robert Stout, K.C.M.G.	1886

		Vol. of Journal for
f. VITAL STATISTICS—		
Births, Deaths, and Marriages, and the Comparative Progress of Population in some of the Principal Countries of Europe	Frederick Martin	1877
The Populations of Russia and Turkey	E. G. Ravenstein, F.R.G.S.	"
Certain Changes in the English Rates of Mortality	Thomas A. Welton	1880
On the Increase of Population in England and Wales	R. Price-Williams, M. Inst. C.E.	"
The Growth of the Human Body	J. T. Danson	1881
The Number of Deaths from Negligence, Violence, and Misadventure in the United Kingdom and some other Countries	Cornelius Walford, F.I.A.	"
Temperature and its Relation to Mortality: an Illustration of the Application of the Numerical Method to the Discovery of Truth	Dr. W. A. Guy, F.R.S.	"
The Relative Mortality, after Amputations, of Large and Small Hospitals, and the Influence of the Antiseptic (Listerian) System upon such Mortality	H. C. Burdett	1882
Two Hundred and Fifty Years of Small Pox in London	Dr. W. A. Guy, F.R.S.	"
A Statistical Chronology of Plagues and Pestilences as affecting Human, Animal, and Vegetable Life, with an Inquiry into their Causes	C. Walford, F.I.A. (not printed in the *Journal* on account of its length)	"
The Recent Decline in the English Death-Rate, and its Effect upon the Duration of Life	N. A. Humphreys	1883
The Recent Decline in the English Death-Rate, considered in connection with the Causes of Death	Dr. G. B. Longstaff	1884
Population Statistics of China	Sir Richd. Temple, Bart., G.C.S.I.	1885
The Population of London, 1801-81	R. Price-Williams, M. Inst. C.E.	"
International Statistics, illustrated by Vital Statistics of Europe and of some of the United States of America. Opening Address of the President	Sir R. W. Rawson, K.C.M.G., C.B.	"
Preventible Loss of Life at Sea	Thomas Scrutton	1886
Suicides in England and Wales in relation to Age, Sex, Season, and Occupation	Dr. William Ogle, M.A., F.R.C.P.	"
g. MISCELLANEOUS STATISTICS—		
The President's Inaugural Address, Session 1876-77	James Heywood, M.A., F.R.S.	1876
Report on the Ninth International Statistical Congress held at Buda-Pesth in September, 1876	Dr. F. J. Mouat, F.R.C.S.	"
Fires and Fire Insurance considered under their Historical, Financial, Statistical, and National Aspects	Cornelius Walford, F.I.A.	1877

g. MISCELLANEOUS STATISTICS—*Contd.*

		Vol. of Journal for
The President's Inaugural Address, Session 1877-78	G. J. Shaw-Lefevre, M.P.	1877
The Second and Final Report on the Ninth International Statistical Congress held at Buda-Pesth in September, 1876	Dr. F. J. Mouat, F.R.C.S.	,,
The Famines of the World, Past and Present	Cornelius Walford, F.I.A.	1878
The Owen's College, Manchester, and a Northern University	James Heywood, M.A., F.R.S.	,,
The President's Inaugural Address, Session 1878-79	G. J. Shaw-Lefevre, M.P.	,,
Remarks on the Statistical Use of the Arithmometer	Prof. W. Stanley Jevons, F.R.S.	,,
Reports on—1. The Fourth Session of the Permanent Commission of the International Statistical Congress held in Paris $\frac{10}{20}$th July, 1878.... 2. The First Session of the International Congress of Demography and Medical Geography held in Paris, $\frac{5}{10}$th July, 1878.... 3. The Second Session of the International Prison Congress held in Stockholm $\frac{29}{27}$th August, 1878	Dr. F. J. Mouat, F.R.C.S.	1879
The Famines of the World, Past and Present. Part II	Cornelius Walford, F.I.A.	,,
On Tabular Analysis	Dr. W. A. Guy, F.R.S.	,,
The President's Inaugural Address	Thos. Brassey, M.P.	,,
Vital Statistics of Cavalry Horses	Dr. T. Graham Balfour, F.R.S.	1880
The President's Inaugural Address	James Caird, C.B., F.R.S.	,,
The Question of the Reduction of the Present Postal Telegraph Tariff	R. Price-Williams, M. Inst. C.E.	1881
The Method of Statistical Analysis	Wynnard Hooper	,,
The English Stations in the Hill Regions of India; their Value and Importance, with some Statistics of their Products	Hyde Clarke	,,
The President's Inaugural Address on the Utility of Common Statistics	Robert Giffen, LL.D.	1882
Food Products and their International Distribution	Stephen Bourne	1883
A Comparison of the Fluctuations in the Price of Wheat and in the Cotton and Silk Imports into Great Britain	Prof. J. H. Poynting, M.A.	1884
English Express Trains in 1871, and a Comparison between them and those of 1883	Lieut. H. B. Wilock, R.E.	,,
On the Laws of Migration	E. G. Ravenstein	1885
Indian Railways and Indian Wheat	A. K. Connell, M.A.	,,

The abstract of receipts and payments, and the balance sheet of assets and liabilities on 31st December, 1885, are subjoined, together with the report of the Auditors on the accounts for the year 1885:—

(I.)—ABSTRACT *of* RECEIPTS *and* PAYMENTS *for the* YEAR *ending* 31*st* DECEMBER, 1885.

RECEIPTS.	£	s.	d.
Balance in Bank, 31st December, 1884 ... £170 6 11			
Balance of Petty Cash. 10 8 3			
„ Postage Account 2 7 7			
	183	2	9
Dividends on New 3 per Cent. Stock	72	13	2
Annual Subscriptions received:—			
35 Arrears ..... £73 10 –			
644 for the year 1885..... 1,352 8 –			
17 in Advance ..... 35 14 –			
— ———	1,461	12	–
696			
3 Compositions	65	–	–
Journal Sales	188	3	3
Advertisements in Journal	25	19	9
	£1,994	10	11
Legacy of Dr. W. A. Guy.....	250	–	–
Total.....	£2,244	10	11

PAYMENTS.	£	s.	d.
Rent £473 19 3			
Less sublet ..... 200 – –			
	273	19	3
Taxes	35	15	–
Fire, Lights, and Water	77	12	3
Repairs, Furniture, &c.	10	1	6
Salaries, Wages, and Pension	469	3	4
Journal, Printing £570 6 3			
„ Annual Index 5 5 –			
„ Shorthand Reporters 18 18 –			
„ Literary Services 30 9 –			
	624	18	3
Ordinary Meeting Expenses	23	4	8
Advertising	49	10	10
Postage and delivery of Journals...	87	12	9
Library	26	15	1
Stationery and Sundry Printing ...	103	12	9
Incidental Expenses	50	13	10
	1,832	19	6
Mr. Watt (for Newmarch Memorial Prize Essay)	100	–	–
Additional Expenses incidental to moving into 9, Adelphi Terrace	66	18	1
New Catalogue of Library.....	170	10	9
	£2,170	8	4
Balance at Messrs. Drummonds ..... 44 11 –			
Balance of Petty Cash 25 12 5			
Balance of Postage Account 3 19 2			
	74	2	7
Total.....	£2,244	10	11

(Signed) "J. O. CHADWICK,
"W. M. BEAUFORT, } *Auditors.*"

"2*nd March*, 1886.

(II.)—Balance Sheet *of* Assets *and* Liabilities, *on* 31*st* December, 1885.

LIABILITIES.	£ s. d.	£ s. d.	ASSETS.	£ s. d.	£ s. d.
Harrison and Sons—					
Journal Account	206 – –		Cash Balances		74 2 7
Miscellaneous Printing Account	22 1 9		2,500*l.* New 3 per Cents, costing...		2,371 13 11
C. and E. Layton, Stationery	13 4 2				
Street Bros., Advertisements	14 19 –		Property: (Estimated Value of)—		
For Annual Index to Journal	5 5 –		Books in Library (about 20,000 vols.)	£1,000	
Miscellaneous (as per List)	80 12 1		Journals in Stock	500	
		342 2 –	Furniture and Fixtures	500	
Special Outlay for Index (estimated)...	431 – –				2,000 – –
Special Outlay for Charter (estimated)	120 – –		Lease of Premises (cost)...	500	
Special Outlay for Jubilee Volume and Meeting	240 – –		Amount written off for time expired	70	
		791 – –			430 – –
17 Annual Subscriptions received in advance		35 14 –	Arrears of Subscriptions recoverable (say)		84 – –
		£1,168 16 –			£4,959 16 6
Balance in favour of the Society*...		3,791 – 6			
		£4,959 16 6			

* This Balance is exclusive of the present value of the absolute Reversionary Interest bequeathed to the Society by the late Dr. Guy.

(III.)—Building Fund (Established 10*th July*, 1873), Balance Sheet, *on* 31*st* December, 1885.

LIABILITIES.	£ s. d.	ASSETS.	£ s. d.	£ s. d.
Amount of Fund Invested from last Account	192 14 11	Invested as per last Account in Metropolitan Consolidated 3½ per Cent. Stock, in the name of the Treasurer, R. B. Martin, Esq.—		
Dividends Received during 1885 ...	6 8 2		£186 17 11 cost	192 14 11
		Purchased during the year.....	5 16 1 „	6 8 2
	£199 3 1		£192 14 –	£199 3 1

(Signed) "J. O. Chadwick,
"W. M. Beaufort, } *Auditors.*"

"2*nd March*, 1886.

"REPORT OF THE AUDITORS FOR 1885.

"STATISTICAL SOCIETY.

"*The Auditors appointed to examine the Treasurer's Accounts of the Society for the Year* 1885,

"REPORT:—

"*That they have compared the Entries in the Books with the several Vouchers for the same, from the* 1*st January to the* 31*st December*, 1885, *and find them correct, showing the Receipts (including a Balance of* 183*l.* 2*s.* 9*d. from* 1884) *to have been* 2,244*l.* 10*s.* 11*d.*, *and the Payments* 2,170*l.* 8*s.* 4*d.*, *leaving a Balance in favour of the Society of* 74*l.* 2*s.* 7*d. at the* 31*st December*, 1885.

"*They have also had laid before them an Estimate of the Assets and Liabilities of the Society at the same date, the former amounting to* 4,959*l.* 16*s.* 6*d.*, *and the latter to* 1,168*l.* 16*s.* –*d.*, *leaving a Balance in favour of the Society of* 3,791*l.* –*s.* 6*d.*

"*The amount standing to the credit of the Building Fund at the end of the year* 1885, *was* 199*l.* 3*s.* 1*d.*, *invested in Metropolitan Three and a Half per Cent. Stock, in the name of the Treasurer, R. B. Martin, Esq.*

"*They further find that at the end of the year* 1884 *the number of Fellows on the list was* 909, *which number was diminished in the course of the year to the extent of* 55, *by Deaths, Resignations, and Defaulters, and that* 74 *new Members were elected, leaving on the list on the* 31*st December*, 1885, 928 *Fellows of the Society.*

(Signed) "J. O. CHADWICK,
"W. M. BEAUFORT,
*
} *Auditors.*"

"2*nd March*, 1886.

* Mr. G. H. Simmonds, the third Auditor, was prevented by pressure of his official duties at the Board of Trade from attending to audit the accounts.

Proceedings *of the* Fifty-Second Anniversary Meeting.

The President said his first duty was to express their united regret at the loss which the Society had sustained by the death of their old friend and ardent supporter—Dr. Guy; still, satisfaction was mingled with the regret, for with rare and too infrequent liberality, Dr. Guy had endowed the Society with a very large sum. He had left them a legacy of 250*l.*, and a reversionary interest which could scarcely amount to less than 7,000*l.* or 8,000*l.*, and which at the present moment, having regard to the value of the lives interested, must be counted as an asset in favour of the Society of at least 4,000*l.* or 5,000*l.* Last year was an eventful one for the Society, and he hoped it would be agreed that it had been a satisfactory one. The next item to which he wished to call attention was the completion of the Catalogue and Index of the Books in the Library. The Index would be distributed as fast as it could be bound. He trusted it would be found to be a very useful volume. The Council proposed that the cataloguing and indexing should in future be kept up to date, so that the Assistant Secretary might be in a position at any time to say what books were in the Library on any subject. With regard to the Jubilee of the Society last year, through the liberality of the members the funds had not been trenched upon except to the extent of a part of the printing of the Jubilee volume, which he trusted would be found to contain matter of interest, and to constitute a favourable record of the Society. Of course he had been very much in communication with the foreign gentlemen who attended the Jubilee meeting, and they all, without exception, had expressed their gratification at the reception they met with, at the work done by the Society, and with the very important result arising from the meeting, namely, the constitution of the International Statistical Institute. The Council was also gratified to be able to announce that, with two or three exceptions, every gentleman nominated to it without his own knowledge, had accepted the nomination, and a large number were seeking to be added. The Italian Government had so far appreciated the usefulness of the Institute, that they had put on the estimates 15,000 lire, or 600*l.*, for the publications of the Institute, and 10,000 lire, or 400*l.*, to defray its expenses this year if they were permitted to meet at Rome. Although the Institute had been founded on the basis of complete freedom from Government interference or control, which seemed to have wrecked the International Statistical Congress and the Permanent Commission, yet it was hoped that it would receive the support of the Governments of Europe, and this beginning by the Italian Government was a great augury of success. Still he was afraid that few Governments would be found disposed to follow so liberal an example. There was no reason to doubt that the Royal Charter would be granted to the Society as soon as compatible with the usual legal forms, and that before the next meeting

the Society would be a Royal Society under a Royal Charter. The Council had felt that there would be a difficulty in the Fellows writing themselves F.R.S.S., as it might confound them with the Fellows of the Royal Society, who were F.R.S. The Council of the Royal Society had also been sensible of the difficulty, and had communicated with the Council of the Statistical Society respecting it, but they had been informed that the letters F.S.S. would be continued as they had been used for the last fifty years. It was deeply to be regretted that the Society had lost so many Fellows of distinction during the past year, to whom some of the present Fellows were bound by personal ties. He hoped that younger men would rise up to fill the places of those great men who in their latter days had become ornaments—not only to the Society—but to the country. The next point to call attention to was the Appendix, which was similar to that added at the end of each previous decennial period, giving a list of the papers read, a classification of the subjects, and the names of the authors. There was very little to remark on the financial position of the Society beyond the munificent bequest of Dr. Guy. During the last two years an expense had been incurred by the preparation and publication of the catalogue and the removal from King's College. That removal was rather a serious matter, costing nearly 1,300*l.*, 800*l.* of which was for expenses, fitting their cases, furniture, &c., and 500*l.* for the purchase of the lease. This was the first time that the expenditure table on p. 514 had figured in the annual report. Hitherto only the revenue had been given, and he trusted the members would be satisfied with the way in which their funds had been managed. One gentleman had expressed an expectation that there would be a frightful increase in the expense of the *Journal*, but last year it cost 625*l.*, whereas in 1881 the amount was 609*l.* Considering the number of diagrams which had been added, and the increase in the quantity of tabular matter, he thought the Fellows would be satisfied that the expenditure and the future prospects were most satisfactory. In conclusion he moved that the Report of the Council, the Abstract of Receipts and Payments, the Balance Sheet of Assets and Liabilities, and the Report of the Auditors for 1885, be adopted, entered in the minutes, and printed in the *Journal*.

Mr. H. C. Burdett seconded the motion. He said that at the last annual meeting he called attention to one or two points which were not mentioned in the report, and he wished now to ask if anything had been done in respect thereto. It had been pointed out that some Fellows were using the title F.S.S. for advertising purposes; under Rule 8 the Council had the power to stop that, and he desired to know if any steps had been taken in that direction. He also wished to suggest that it would be very useful to those who took a genuine interest in the Society, if they could receive a copy of the annual report at least a week before the annual meeting. Facilities might also be granted to a limited number of Fellows specially interested for obtaining on application two or three days in advance copies of the papers to be read at the evening meetings. Considering the importance of the subjects

which were sometimes dealt with, it was not possible to have an exhaustive or even a useful discussion, comparatively speaking, unless a previous opportunity were afforded for looking into the facts brought forward by the authors. Very often the reading of a paper occupied an hour, and the time remaining was too short for many persons to take part in the debate. Would it not be possible, instead of having a paper read, to have a special subject for discussion, introduced by a speech lasting, say, twenty minutes? He believed that such a plan would be found to act very beneficially. In his opinion something should be done in order to make the Society more practically useful, and he rejoiced to find that a Committee had been appointed to report to the Council on the best arrangements that could be made for the selection of papers of interest. He would like to revert to the old practice, and have committees sitting from time to time, as occasion required, upon subjects of great statistical importance. He had noticed that in Government returns errors occurred which were repeated from year to year, and it would be helpful to the departments and useful to the public if the Society had a Committee to which all blue-books might be referred which contained statistical returns. Those who had to deal with American statistics knew how difficult it was to use them, because they were so diffuse, and he was certain that a Committee on the lines he had suggested would be for the public advantage. It might also be helpful if the Society sometimes occupied the position of a referee. He considered that the Society would be benefited if an alteration were made with reference to the Executive Committee. At present it consisted of the executive officers, who changed but little, and so only small vitality attached to the proceedings of the Society. All matters were first referred to the officers, or Executive Committee, and then only such business as they might decide comes before the Council. In his opinion the present practice should be exactly reversed; all the business should go first to the Council, and only such matters as the Council might see fit should be dealt with by the Executive Committee, which should be subordinated to and not the masters of the governing body, namely, the Council.

The President said the Executive Committee were the constant advisers to carry out the business of the Society, but they took nothing upon themselves. Every matter that was of consequence was referred to the Council. It would be exceedingly difficult to get thirty gentlemen together to carry on the business unless some preparation were made for them. That duty the Executive Committee performed, exercising no discretion for which they had not received full power from the Council. The greater part of the business was matter of correspondence and routine, which might well be conducted by the Committee without any prejudice to the interests of the Society. He thanked Mr. Burdett for taking so much interest in the work of the Society as to bring these questions before the meeting. With regard to the abuse of the title F.S.S., on every occasion on which it had come to the notice of the Council, a letter had been written to stop it. On one occasion it

was repeated, when a second letter was sent, and if the abuse had not been discontinued the necessary steps would have been taken to enforce their decision. If any Fellows found that persons were improperly using the title, he begged them to bring the facts to the notice of the Council. Still it must be acknowledged that the same thing existed in other societies, some professional gentlemen became members of societies simply for the purpose of adding the letters to their names. In the Royal Geographical Society scarcely a session passed in which ten or twenty gentlemen did not become members in order to have the honour of signing themselves F.R.G.S. One case that had come to the notice of this Council was that of a gentleman interested in stockbroking in Scotland, but the statement had been sent to him that for social purposes he was F.S.S., but not for trade purposes. (Mr. Thomas Hudson said he knew secretaries of building societies who put F.S.S. after their names.) The President said the Council had decided to do their best to stop such practices. The annual report could not be completed till after the last meeting in June when members were elected, and therefore he was afraid it would not be possible to circulate it earlier, but if it could be done there was no indisposition on the part of the Council to make the effort. He was afraid that copies of the papers to be read could not be sent out before the meetings to all the members. As far as could be, experts were invited to attend the meetings, and when possible copies were forwarded to them. Many of the papers were not finished until the Saturday or Monday previous.

Mr. Stephen Bourne said there were two kinds of persons who took part in the discussions—those who with comparatively small knowledge of the subjects would refer back to authorities, and those who were competent to speak on the papers immediately they were read, and he preferred the extemporaneous remarks of the latter.

The President said he had the strongest objection to the suggestion that questions should be briefly stated for debate. He could understand such a practice existing in a politico-economico club, where no member was admitted without being recommended and balloted for, as a man of science or experience, and where no guest was invited who was not competent to take his part in any discussion; but in a body of nine hundred members elected without examination as to their competency, and accepted gratefully if they gave their annual two guineas, such public debate would not further either the objects or the interests of the Society. He preferred to have well considered papers by men who were known to the Council as capable and competent. The point had been to a certain extent already discussed in the Council, and it was decided that it would be inconsistent with the regulations and the objects for which the Society was founded. With regard to making the Society more practical, whenever a subject of interest turned up, a special committee was appointed, as for instance on every occasion of the census. There had been two or three special committees within a recent period, but such inquiries as those into the con-

dition of the poor and the schools of London, had been taken out of the hands of the Society by official and public bodies, who had learned to appreciate what the Society had set the example of doing fifty years ago. They could not undertake the task of correcting errors in Government returns, nor did he think that the Fellows would wish the Council to become a referee in matters of statistics. They were, however, always ready to give information on any particular point, by reference to the library or introductions to experts.

Dr. T. G. Balfour said he had been for thirty years in a statistical branch of the Government, and he should have resented any such interference with his work as had been suggested by Mr. Burdett. When he had felt any difficulty in regard to statistical matters, he had always known to what quarter to apply for advice and information, and could generally in some Government department find men perfectly well qualified to advise him. If the Society were to put itself forward as a referee in cases of Government returns, it would place itself in a false position.

The motion was agreed to unanimously.

Mr. Rowland Hamilton and Mr. T. H. Elliott were appointed Scrutineers of the ballot: and the ballot having been taken—

The President announced the Scrutineers had reported, that all the persons named in the printed list submitted to the meeting had been unanimously elected to serve as the President, Council, and Officers for the ensuing year, and congratulated the Fellows upon Mr. Goschen having accepted the office of President. He did not think any one could have been selected more likely to contribute to the honour, well-being, and progress of the Society.

On the motion of the President, a vote of thanks to the Scrutineers was agreed to.

Mr. Giffen moved a vote of thanks to the President, the Council, and the officers of the Society for their services during the past year, and to the Chairman for presiding on the present occasion. The session, he said, had been a laborious one, and very profitable in respect of the papers that had been read. Comparing the work of the Society at present with what it was in its early years, a very great improvement could be discerned, not only in the quantity, but in the quality of matter produced. Fifty years ago many of the Statistical Society's ideas were new, and the Society perhaps attracted more attention than it now did, but there had been a steady and continuous improvement in the work done. For this success they were indebted to the office-bearers of the Society, and having himself been an office-bearer in past times, he was now happy to recognise the services of the existing Council, and the excellence of their work. A special vote of thanks ought to be tendered to the President for the great services he had rendered during the two years he had been in office. During that term he

had had to conduct the Jubilee proceedings in connection with the Jubilee, to entertain a great number of foreign guests, and to take part in the establishment of the International Institute. In these respects his services had been most exceptional. His tact, courtesy, and knowledge of foreign ways and manners had all been extremely useful to the Society. The President had also devoted more time than most Presidents had done towards contributing to the prosperity of the Society. He must say a word in recognition of the fact that their new President was a distinguished statesman. At the first meeting of the Society which he (Mr. Giffen) attended, Mr. Gladstone was the President, and the Society was going back to a good rule when a gentleman like Mr. Goschen was willing to fill the office. Among our public men at the present time Mr. Goschen had shown the greatest interest in statistics and the greatest capacity for dealing with them. It was a source of satisfaction then that so eminent a public man had accepted the position of President, and they might look forward with great hope to a period of prosperity under his direction. There was another matter not quite germane to the motion to which he wished to refer. He had had experience in connection with the circulation of papers before discussion, as editor of the *Journal*, as a member of the Council, as an officer of the Society, and also as a contributor, and he was bound to say that what Mr. Burdett wished was practically impossible, and even if it were possible, it would very likely not be desirable. So far as he himself was concerned, on two occasions the papers he had to read on the Tuesday were not begun on the previous Friday evening. That, of course, was an extreme case, it might be said, but it was not so extreme as some would suppose. Gentlemen who undertook to read papers, sometimes through the pressure of other business could not begin them till the eleventh hour. It was utterly impossible in some cases to predict how long the statistics would take to bring out. It was thus useless to lay down a hard and fast line as to the date on which the papers must be ready for distribution. Even if they could be ready, gentlemen who had given a great deal of time to a subject, would hardly like the result of their labours to be sown broadcast, so that others might have an opportunity of getting up the points and criticising them, while the writer of the paper had no time to prepare his reply. It was severe enough for the author of a book to be subject to criticisms by all and sundry, but he could take his own time to reply, if he thought a reply necessary, but the reader of a paper exposed to the criticism of those who had time to get up the subject, was placed under the peculiar disability that he had no opportunity of looking up the points which might be seized upon by the critic. Mr. Bourne was moreover quite right in saying that an expert who knew the subject could usually make some useful remarks without having the paper beforehand. The system of distributing papers had thus much better be left as it is.

Mr. T. H. Elliott seconded the motion, and said no one could have attended the meetings of the Society during the past year

without having listened to a series of most interesting papers on important questions of the day, well calculated to afford edification and instruction to all. He desired especially to express his sense of the services rendered to the Society by Sir Rawson Rawson, who had displayed during his term of office so many of the qualities necessary to ensure success in the office of President.

The motion was agreed to by acclamation.

The PRESIDENT thanked the meeting. He was pleased to hear that he had given satisfaction to the Fellows, for after the last meeting a friend, who was not a member of the Society, came to him and said, "You carry things on in an autocratic way with your 'Three minutes more.'" With regard to the other Officers, very few could form an idea of the amount of time and labour which Mr. Martin—a business man in the city—had given to the Society, which was greatly indebted to him as also to Mr. Bateman, for their services. Mr. Baden-Powell had necessarily, as a member of Parliament, been frequently absent.

Notes *on the* Progress *of* New Zealand *for* Twenty Years, 1864-84.

By the Hon. Sir Robert Stout, K.C.M.G., *Premier of the Colony.*

[Read before the Statistical Society, 22nd June, 1886. The President, Sir Rawson W. Rawson, K.C.M.G., C.B., in the Chair.]

CONTENTS:

	PAGE
I.—Population, &c.	540
II.—Trade and Shipping	552
III.—Mineral Development	556
IV.—Pastoral Development	558
V.—Agricultural Development	559
VI.—Manufactures	560
VII.—Increase of Wealth, Advance in Credit, and General Material Advancement	563
VIII.—Probable Future Development	567
Appendices	569

The natural development of the colonies has often engaged the attention of statisticians. There is some difficulty in so grouping the statistics as to show, not merely the growth of the colony, but the lines along which it has progressed. I propose to show the increase in population, in wealth, and in well-being of New Zealand, and also to point out how colonisation has advanced in these islands. Twenty years is a fair period to take for purposes of comparison and contrast. It is especially suitable in the case of New Zealand, as, twenty years ago, the gold fever had begun to cool, and colonists were looking for other sources than gold mines for the production of wealth.

It would be out of place to sketch the earlier progress of the colony, but it may be here briefly stated that New Zealand has passed through what might be termed distinct economic eras. In the earliest days it was looked upon as the seat of the whale fishery in the Pacific, and in its harbours were to be found whalers from America, from Tasmania, from New South Wales, and from England, all prosecuting their calling. Shortly after the whale fishing came pushing traders, who bartered goods with the Maoris, and usually looked upon Sydney as their head-quarters. Then there were in these periods the planting of missions, and the beginning by the Maoris of a rude form of agriculture. The next economic era saw New Zealand, from the small settlements that had been founded by the New Zealand Company and various associations, rapidly produce agricultural products, aided in this by the Maoris in various districts. These products were sold at high rates to the new goldfields of Victoria; and these goldfields

did more for the early development of New Zealand than is usually credited, especially when the distance between Australia and New Zealand is remembered—more than a thousand miles.

Pastoral pursuits also became of importance. At the same time as the goldfields of Victoria were started, enterprising colonists from Australia visited New Zealand, and took up large areas of waste lands of the Crown, mostly in the South Island, for pastoral purposes. This might fairly be termed the pastoral era.

Then came the opening of the goldfields in Otago in 1861. A vast population was soon attracted to that district; and, just as the population increased, so the exports of wheat, oats, and potatoes, that had been large in the years 1853-60, suddenly ceased. There was, in fact, a home consumption for everything that could be raised. Nay, more; New Zealand had to depend upon foreign countries for her food-supplies. From South America, Chili particularly, and from South Australia, she drew her wheat and flour. Butter and cheese and hams she had to obtain from England and Ireland. After 1864 agricultural produce began more rapidly to develop; and for some years past we have entered, and are still entering, on manufacturing enterprises. Not that our pastoral or agricultural pursuits have decreased; on the contrary, they have largely increased; but along with their increase we are slowly building up a considerable number of manufacturing industries.

I propose to view the progress that New Zealand has made, under the following heads:—

I. To deal with population, including under that head the location, the education, the birthplaces, the religions, the crime, and the morals of the people. Under the education of the people, it may also be well to notice those things that go to make up the social and intellectual wellbeing of the people—libraries, museums, &c.
II. Trade and shipping development.
III. The mineral development.
IV. Pastoral development.
V. Agricultural development.
VI. Manufactures.
VII. The increase of wealth, advance in credit, and general material advancement.
VIII. Probable future developments.

I.—*Population, &c.*

To begin first with the population, New Zealand had a population, at the end of 1864, of 184,131 persons, not including those of the native race; but of that number 9,136 were officers and men on military service. We have now practically no army, such

as existed in 1864. The native difficulty does not now, as it then did, loom largely in the public mind. We have, it is true, a police force for the colony, but it only numbers 238 armed constabulary and 490 police. While for the defence of our ports from foreign aggression we have as a nucleus for the volunteer movement the following number of artillerymen at each port: Auckland, 26; Wellington, 27; Lyttelton, 27; Dunedin, 26; making a total of 106. We do not need officers and men to fight the Maoris now, and, so far as foreign aggression is concerned, we have of thoroughly drilled volunteers no less a number than 10,110, made up as follows: adults, 8,530; cadets, 1,580; whilst there are many of our population who have been drilled, but who are not enrolled in any permanent volunteer corps. The total population at the end of 1884, exclusive of Maoris, was estimated to be 564,304 persons, of whom 306,667 are males and 257,637 females. Perhaps there are now in the colony about 45,000 Maoris. It was estimated that in 1881 there were 44,097 Maoris, but it is impossible to state at present their exact number. Amongst our population, however, we have people from all parts of the world. Of coloured races the largest number, outside the Maoris, belongs to the Chinese empire. At the last census, in 1881, we had no less than 5,033 Chinese. But, if we take the birthplaces of the settlers in the colony, it will be seen that those born in New Zealand now number considerably more relatively than they did in 1864. In 1881 45·60 per cent. of the people were born in New Zealand, and as the population of the colony increases the percentage of native New Zealanders will soon show a higher percentage. The following were the nationalities for the years 1864 and 1881 respectively:—

	Proportion per Cent. of each Nationality to the respective Totals of Population.	
	1864.	1881.
England	33·95	24·33
Ireland	11·80	10·08
Scotland	17·98	10·77
Wales	0·60	0·40
New Zealand	23·95	45·60
Australian colonies	5·54	3·53
Other British dominions	1·80	0·82
United States of America	0·65	0·17
France	0·29	0·17
Germany	1·16	0·98
Other foreign countries	1·27	2·71
At sea	0·35	0·27
Not specified	0·66	0·17

As to the religions of the people, the census of 1881 gave the following: and, relatively, there will not be much change, namely, 41·50 per cent. Church of England, 24·09 Presbyterian, including under the head of Presbyterian the various Presbyterian organisations. In New Zealand there are two main Presbyterian bodies, what is called the Presbyterian Church of New Zealand, and the Presbyterian Church of Otago and Southland. One does not interfere with the territorial jurisdiction of the other, and they are managed by distinct Church Courts. Of Wesleyans there are 9·52 per cent. The following statement will show the religions in the years 1864 and 1881 respectively:—

	Proportions per Cent.	
	1864.	1881.
Church of England and Protestants not otherwise defined	46·43	41·50
Presbyterians	24·43	23·09
Methodists, &c.	8·04	9·52
Baptists	1·97	2·34
Congregational Independents	2·14	1·37
Lutherans	1·05	1·18
Roman Catholics	12·49	14·08
Pagans	—	1·01
Otherwise described	1·29	2·33
Object to state	—	2·85

There can hardly be said to be any place noted for a particular religious belief. The original constitution of Canterbury was Anglican; of Otago and Southland, Presbyterian; and of New Plymouth, Nonconformist: but that has been altered by the subsequent colonisation of the country. There is, however, a larger proportion of Presbyterians in Otago and Southland than in any other part of the colony, and in Canterbury perhaps there is a larger proportion of Anglicans.

In 1884 there were 730 clergymen licensed to marry, and here it may be mentioned that every clergyman is licensed to marry on application by the head of his church or by twenty-four of his people to the registrar-general. The number licensed to marry in 1864 was 247.

The test of the popularity of the churches can hardly be determined by the number of marriages performed by the clergymen. The Anglican Church still insists upon marriages being in the church, and so does the Roman Catholic; while the Presbyterian body allow their clergymen to perform the marriage ceremony in private houses. Marriages are also performed by registrars, and these have, in late years, greatly increased. It may be noted that

in 1864 and 1884 respectively, the marriages performed by the various clergymen and registrars were as follows :—

	Percentage of Total Marriages.	
	1864.	1884.
Church of England	27·79	20·86
Presbyterians	33·01	24·67
Wesleyans and other Methodists	12·03	13·70
Roman Catholics	11·39	12·39
Registrars	8·08	23·25

Still dealing with the population of the colony, it may be well to notice the birth-, death-, and marriage-rates, which, for the two years 1864 and 1884, were as follows :—

	Numerical.		Proportion per 1,000 of Population.	
	1864.	1884.	1864.	1884.
Births	6,501	19,846	38·05	35·91
Deaths	2,921	5,740	17·03	10 39
Marriages	1,878	3,800	11·12	6·87

The marriage-rate is the lowest in all the Australasian colonies. In the other colonies the rates were as follows for 1884 :—

	Per 1,000 of Mean Population.
Queensland	8·91
New South Wales	8·36
South Australia	8·28
Victoria	7·63
Western Australia	7·11
Tasmania	7·81
New Zealand	6·87

The deaths recorded were 5,740, the rate being 10·39 per 1,000 of the mean population. Only once in the twenty years has the rate been so low—viz., 10·13 per 1,000 in 1871. The rate in 1864 was 17 ; and it has been during the last twenty years as follows :—

	Per 1,000 of Population.		Per 1,000 of Population.
1865	15·13	1875	15·92
'66	12·86	'76	12·66
'67	12·78	'77	11·47
'68	11·94	'78	10·96
'69	11·73	'79	12·46
'70	11·13	'80	11·46
'71	10·13	'81	11·13
'72	11·68	'82	11·19
'73	12·66	'83	11·45
'74	12·97	'84	10·39

The death-rate in New Zealand is considerably below that of the other Australasian colonies, and much lower than in England, the rates for the last eight years being as follows:—

	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.
New Zealand	11·47	10·96	12·46	11·46	11·13	11·19	11·45	10·39
„ South Wales	15·28	15·88	14·29	15·57	15·12	16·03	14·52	15·88
Queensland	17·29	20·41	14·97	13·59	15·02	17·99	18·82	22·97
Victoria	15·80	15·46	14·53	13·70	14·16	15·31	14·18	14·27
South Australia	13·99	15·44	14·09	14·85	14·49	15·15	14·83	15·52
Western „	15·70	14·07	14·46	13·24	13·80	14·16	17·93	21·87
Tasmania	19·17	15·66	15·18	16·12	14·77	15·79	17·07	15·50
England	20·03	21·06	20·07	20·05	18·09	19·06	—	—

The occupations of the population show the different avenues in which people are now seeking employment:—

Occupations.	1864.	1881.
Trade, commerce, and manufactures	7,625	70,926
Mechanics, artificers, and skilled workers	12,118	
Agricultural and pastoral	12,089	54,447
Mining	12,527	14,273
Professions—clerical, medical, and legal	619	10,233
Teachers, surveyors, and other educated professions	1,106	
Labourers	12,639	41,635
Domestic and general servants	6,202	
Miscellaneous	13,991	
No occupation stated (principally women and children)	92,282	298,419
	172,158	489,933

I now come to the education of the people, and that may be tested in two or three ways. In arriving at the education of the people by an enumeration of those who are returned as able to read, or to read and write, we are apt to be mislead by the statistics. First, the ages of the population have to be considered. It is impossible to make a correct comparison, as the census returns of 1864 and 1881 were differently calculated. According to the census returns of 1864 and 1881 the following were the proportions per cent. of the population:—

	1864.	1881.
Cannot read	20·13	23·05
Read only	7·17	5·63
„ and write	72·70	71·32

If the ages were tabulated—if those under and over 15 were taken in the two years—the proportions would be :—

	Cannot Read.	
	Under 15.	Over 15.
1864	53·26	3·54
'81	41·32	3·01
	Read Only.	
1864	13·65	4·58
'81	25·64	4·54
	Able to Read and Write.	
1864	33·09	92·54
'81	49·66	93·90

The reason why there was such a high percentage of those who could read and write in 1864 was the large number of adults in the colony, mainly attracted by the gold discoveries. This also accounts for the then vast preponderance of males over females. Excluding military and their families—which consisted of officers and men 9,136, male children 933, women 1,026, and female children 880—there were :—

	Males.	Females.
Under 5 years	13,531	13,101
5 years and under 10	9,474	9,083
10 „ 15	6,802	6,378
15 „ 21	8,108	7,037
21 „ 40	53,919	22,396
40 „ 55	11,023	5,703
55 „ 65	2,409	1,348
65 and upwards	657	418
Not stated	657	117
	106,580	65,578

This state of things has been greatly changed during twenty years. The family-life has grown, and the numbers of young people relatively to old have increased, as the following table will show :—

	Males.	Females.
Under 5 years	41,636	40,653
5 years and under 10	34,305	33,610
10 „ 15	28,875	28,747
15 „ 21	25,225	25,723
21 „ 40	82,349	59,420
40 „ 55	43,624	23,380
55 „ 65	8,664	5,495
65 and upwards	3,957	2,938
Unspecified	970	362
	269,605	220,328

The most satisfactory thing in the statistics is the fact recorded that our young people are more advanced than their elders in education. This will be seen when it is stated that, of persons between 15 and 20 years of age, 97·48 per cent. were able to both read and write. After 20 years of age there is a slight decrease. Between 20 and 25 years it was 96·75, and so on:—

25 years to 30	95·34
30 „ 35	93·97
35 „ 40	92·84
40 „ 45	92·21
45 „ 50	91·58
50 „ 55	90·60
55 „ 60	89·66
60 „ 65	87·44
65 „ 70	86·26
70 „ 75	85·07
75 „ 80	84·03
80 and upwards	77·72
Unspecified	86·09

The test by the number of those who married and were able to sign the register can be seen by the following proportions in every 100 marriages of those who signed by marks:—

	Males.	Females.
1873	2·94	7·86
'74	3·92	9·30
'75	4·08	9·19
'76	3·85	9·29
'77	3·95	8·54
'78	2·96	6·87
'79	3·31	6·41
'80	2·77	5·37
'81	3·20	5·79
'82	2·50	4·97
'83	2·91	4·62
'84	2·82	4·45

It will be noticed that there has been a gradual decrease of those who cannot write their names in the marriage register.

In 1864 the colony was divided into provinces, and each province had the management of its own educational affairs, without any interference or assistance from the general Government. In 1875 the provinces were abolished, and a general Education Act passed in the year 1877. We have had since then one system applicable to the whole of the colony. We have thirteen education boards, which have the general management of education in their districts; and for each school district there is a school committee, elected annually by householders and parents of children. There is rarely more than one school in each district. The committees take considerable interest in the educational affairs of their own districts. The boards are elected by the school committees. Each board consists of nine members, and three retire annually.

In 1864, though a good deal had been done for education, matters were not, relatively to the population, so far advanced as they are now. As far as I can ascertain the attendance at the schools in 1864 was as follows:—

Attending aided schools	7,903	15,975
„ schools not aided	8,072	

The total expenditure on education was as follows:—

	£	*s.*	*d.*
Auckland, January to December, 1864	2,781	19	1
Taranaki (say)	290	–	–
Hawke's Bay, estimates, July, 1864 to 1865	725	–	–
Wellington, year ending March, 1864	1,269	19	–
Nelson, year ending March, 1864	4,284	14	1
Marlborough, year ending June, 1864	1,200	–	–
Canterbury, year ending June, 1864	8,451	11	4
Otago, year ending December, 1864	2,043	13	1
Total	19,046	16	7

These amounts did not include school fees, nor, in Otago, the school rates; the sums are merely the votes and expenditure out of the general provincial revenue.

The provision for secondary education, even so far back as 1864, had been, considering the age of the colony, considerable. There was a college at Nelson, a college and grammar school in Canterbury, and a high school at Dunedin, and some good private secondary schools in other parts of the colony. There are now in New Zealand the following secondary schools, viz.: Auckland College and Grammar School, Auckland Girls' High School, Thames High School (for boys and girls), New Plymouth High School (for boys and girls), Wanganui Endowed School, Wellington

College, Wellington Girls' High School, Napier Boys' High School, Napier Girls' High School, Nelson College, Nelson Girls' College, Christ's College Grammar School, Christchurch; Christchurch Boys' High School, Christchurch Girls' High School, Rangiora High School (for boys and girls), Akaroa High School (for boys and girls), Ashburton High School (for boys and girls), Timaru High School (for boys and girls), Waitaki High School, Otago Boys' High School, Otago Girls' High School, Southland Boys' High School, and Southland Girls' High School. All these are in full operation.

We have now also a New Zealand University, which is purely an examining body; it confers degrees, but it has no teachers in its employment. The teaching part of the university work is done by affiliated institutions. At present they are as follows: The Otago University at Dunedin, the Canterbury College in Christchurch, the Auckland University College in Auckland, the Nelson College at Nelson, and St. John's College, Auckland.

The expenditure on university education in 1884 was 26,815*l.* The number of students was 499.

The expenditure on secondary education was 71,517*l.*, the attendance being—roll number, 2,577; daily average, 2,351.

The expenditure on primary education was 363,316*l.*, inclusive of 49,679*l.* on buildings; the attendance being—roll number, 96,840; daily average, 75,391.

The morals of the people are usually tested in the following ways: (1) by the amount of police protection they require; (2) by the criminals sentenced in the courts; and (3) by the number of illegitimate births. In 1864 the police force also was under the control of the provincial executives; the number in proportion to the population was about 1 policeman to every 462 persons. In 1884 the number of civil police was only 490, or taken along with the armed constabulary, including the artillerymen, the total number was 834. Compared with the other colonies, where there has been no native trouble, New Zealand stands well, as will be seen from the following:—

Place.	Proportion of Civil Police to Population.
New Zealand	1 to 1,293
New South Wales	1 „ 609
Queensland	1 „ 425
Victoria	1 „ 774
South Australia	1 „ 745

The other test is the number of offenders found guilty in the courts. Crimes may be classed under two heads: what may be termed petty offences, and grave offences—offences dealt with by magistrates, and by the supreme court. A magistrate can only deal

with simple assaults and petty larcenies, breaches of by-laws, and other mere police offences; whilst the supreme court deals with graver questions of theft, and all the higher crimes, felonies, and misdemeanours. Taking the statistics of the two years, it will be seen that in 1864 the total number of convictions (exclusive of Maoris) in magistrates' courts was 11,357, being at the rate of 65·95 per 1,000 of population, whilst in 1884 it was 17,068 or 31·98 per 1,000 of the mean population, showing that, though our population has increased, our crime has greatly decreased. Of these, the convictions for drunkenness amounted to 6,527; but it is to be observed that, if one person is convicted five, six, or a dozen times, each conviction is counted as if it had been a separate offender, and therefore the proportions of persons convicted to the population cannot be given, but only the proportion of convictions —viz., 11·81 to 1,000 of population for drunkenness. The convictions before the superior courts in 1866 were 282, and 1884 219, or 0·39 per 1,000.

There has been a gradual decrease in the number of offences against the person. There were only 871 in 1884, the proportion being 1·57 per 1,000 of population. The proportion of offences against property in 1884 was 2·14 per 1,000 of population.

	Proportion to every 1,000 of Mean Population.				
	1880.	1881.	1882.	1883.	1884.
Number of Persons brought before Magistrates—					
1. For offences against the person	4·08	4·03	3·77	2·98	2·97
2. „ property	5·05	4·49	4·58	4·49	3·97
3. On other grounds	34·61	30·59	35·06	35·05	34·87
Number of Persons Summarily Convicted—					
1. For offences against the person	2·03	2·07	1·80	1·39	1·50
2. „ property	2·42	2·48	2·25	2·19	1·91
3. For other offences	26·71	23·61	27·80	27·77	28·57
Number of Persons Convicted in the Superior Courts—					
1. For offences against the person	0·12	0·07	0·10	0·08	0·0
2. „ property	0·37	0·28	0·18	0·22	0·23
3. For other offences	0·13	0·08	0·11	0·06	0·09

Including offences dealt with summarily, and also in the higher courts, compared with the other colonies, New Zealand stands the lowest in the criminal record, being, for offences against the person and against property, 3·71 per 1,000, whilst in Victoria there were 3·86; South Australia, 4·05; Tasmania, 6·98; Queensland, 7·80; and in New South Wales, 10·67. In juvenile crime New Zealand

is also exceedingly low, and no doubt that has been caused by the elaboration of the industrial school system, which has been permanently adopted in New Zealand. The Government has industrial school institutions directly under its control in Auckland (at Newton and Kohimarama, treated as one school), at Burnham in Canterbury, and at Caversham in Otago. In connection with these three institutions there were the following children at the close of 1884: Resident in the schools, 432; boarded with foster parents, 384; making a total of 816 maintained at the expense of the State. There were also 347 children at service or with friends, although still under the legal protection of the managers of the schools. There is also an industrial school and orphanage at the Thames, supported by the Government, but under the management of a local committee, in connection with which there were at the end of the year 1884 17 committed children, 5 of whom were at service or with friends. There are also what may be termed private institutions to which children are sent, for whom the Government pays, as a rule, about 7*s*. per week; these are: St. Mary's School in Auckland, St. Joseph's in Wellington, and St. Mary's in Nelson. These institutions are Roman Catholic.

The children committed under the industrial school system are of three classes: children who themselves have done wrong, children who were in destitute circumstances, or whose parents have either done wrong or neglected them. The total number committed under the Act in 1884 was 313, who may be classified as follows: destitute, 195; vagrant, 11; residing in disreputable houses, 23; uncontrollable, 27; guilty of punishable offences, 37; committed by agreement with the parents, 20.

It may also be noticed that, though crime has decreased, a great number of those who are in our gaols are what may be termed "habitual criminals" or "habitual drunkards." In 1884 there were 483 males and 81 females who had been once convicted, 282 males and 65 females who had been twice convicted, and 720 males and 579 females who had been convicted three or more times. The birthplaces of the prisoners were as follows:—

	Nationality to 100 of Total Prisoners.	Nationality to every 100 Persons at Census of 1881.
New Zealand	9·10	45·60
Australian colonies and other British possessions	5·72	4·35
England and Wales	33·57	24·73
Scotland	13·14	10·77
Ireland	30·13	10·08
China	0·60	1·03
Other foreign countries	7·74	3·44

The low percentage of the New Zealand born population is, no doubt, partially accounted for by the fact of all the young children having been born in the colony. At the same time it is believed that the people in the colony are, compared with the people born elsewhere, less criminal. This, no doubt, may be accounted for by education, by surroundings, and by greater material comfort. As to illegitimacy—the third test that is applied to the morals of a community—the following are the statistics: the number of illegitimate births registered in 1884 was 587, or 2·96 of every hundred births. In 1873, which is the earliest date of which there is any reliable record, the proportion was 1·416. As compared with the other colonies New Zealand stands well, as will be seen from the following statement of illegitimate births in the Australasian colonies for the last ten years per 100 births:—

Year.	New Zealand.	New South Wales.	Queensland.	Victoria.
1875	1·36	4·20	3·43	2·92
'76	2·23	4·08	3·21	3·64
'77	2·08	4·14	3·64	3·88
'78	2·41	4·03	3·68	4·15
'79	2·29	4·51	4·31	4·86
'80	2·43	4·35	4·31	4·80
'81	2·85	4·26	4·20	5·09
'82	2·87	4·24	4·40	4·75
'83	2·78	4·21	3·66	4·69
'84	2·95	—	—	4·30
Means	2·32	4·22	3·76	4·25

There seems, however, to be an increase of illegitimate births in New Zealand as the colony grows older, and as the population gets more dense in the larger towns.

The religions of the prisoners for the year 1884 were as follows:—

	Proportion per 100 of Total Prisoners.	Proportion per 100 of Total Population.
Church of England	42·05	41·50
Roman Catholic	35·18	14·08
Presbyterian	14·17	23·09
Wesleyan	2·03	9·52

It will be necessary now to note the provision that has been made during the past twenty years for those things that tend to increase the happiness of the people—providing for their social enjoyment and intellectual life. We have libraries in every village. In Auckland there are a museum and a public library,

as well as an art gallery. Wellington has a large library, a very fine museum, and a library of scientific works connected with the Scientific Institute. In Christchurch there is a magnificent museum—better, indeed, than either the one in Melbourne or in Sydney. It has also a large public library. In Dunedin there are a very fine museum and an art society, which holds exhibitions of pictures once a year. Art societies are formed also in Auckland, Wellington, and Christchurch. There are a University library, an Otago Institute library, principally for scientific works, and a large athenæum library—all in Dunedin. Invercargill has a handsome athenæum building. A test of the desire for information amongst colonists may be obtained by a comparison of the newspapers published in New Zealand, and the books and literature imported, as well as the newspapers posted. The value of books imported in 1884 was 115,246*l*. This does not include magazines, newspapers, &c., and books coming by post. Then, the number of newspapers published was 49 daily and 91 weekly, bi-weekly, and tri-weekly, and 32 others, making a total of 172, or one to every 3,281 of the population. In England and Wales the number was 1,962 newspapers, or 1 to every 13,828; in Ireland, 152 newspapers, or 1 to every 32,585; in Scotland, 184 newspapers, or 1 to every 21,013; and in the United States, 10,771 newspapers, or 1 to every 4,656 of the population. There are theatres in every town, also concert halls, musical societies, and debating societies, and the New Zealand Institute—an institute founded for scientific purposes—has no less than eight branches. A handsome volume is published every year giving the researches of the members, and its pages show that great attention is paid to the natural history of the colony. In 1864, though there were the nuclei of libraries, there had been little development in that direction, nor were there any museums in existence; and the New Zealand Institute was only incorporated by Act in 1867.

II.—*Trade and Shipping.*

The trade of the colony has undergone many changes in twenty years. The character of the shipping has been entirely altered. Up to 1864 our goods were brought to us from England mainly in wooden ships, and these took our produce from the colony to other countries. It is true that there were steamers running between Melbourne and the colony, and occasionally from Sydney, but these were small compared with the steamers now performing the passage. After 1864 iron ships began to be numerous. But now we have direct steam communication with England, two services of most magnificent vessels, comprising the following: "Ionic," 4,753 tons; "Coptic," 4,367 tons; "Doric," 4,744 tons; "Tainui,"

5,200 tons; and "Arawa," 5,200 tons, belonging to the Shaw, Savill, and Albion Company: and the "Rimutaka," 4,474 tons; "Ruapehu," 4,163 tons; "Kaikoura," 4,474 tons; "Tongariro," 4,163 tons; and "Aorangi," 4,163 tons, belonging to the New Zealand Shipping Company. There is a fine mail service to America by the San Francisco route; the steamers leave the colony once every month and arrive once a month, calling on their way at Honolulu.

The number of ships and tonnage do not seem to have so largely increased, considering our exports and other trade; but, of course, that may be partially accounted for by the fact that the steamers are larger, and make more rapid voyages. The shipping in 1864 was the following:—

Vessels Entered Inwards.

From	Vessels.	Tons.
United Kingdom	148	102,679
New South Wales	408	140,485
Victoria	254	112,143
South Australia	53	13,396
Tasmania	136	22,758
Mauritius	7	1,708
Cape of Good Hope	6	1,867
Norfolk Island	2	100
Vancouver's Island	1	847
India	2	2,003
Hongkong	1	354
Prince Edward Island	1	173
South Sea Islands	31	2,637
United States	35	13,098
South America	10	3,177
New Caledonia	1	258
France	3	1,416
Germany	1	575
Sweden	3	1,506
Southern Whale Fishery	14	4,845
Totals	1,117	426,004

Cleared Outwards.

Countries to which Cleared.	Vessels.	Tons.
United Kingdom	25	18,323
New South Wales	514	165,522
Victoria	154	62,034
South Australia	18	4,155
Tasmania	118	21,208
Queensland	3	598
Norfolk Island	1	50
Point de Galle	2	2,407
India	37	35,948
Mauritius	1	215
Prince Edward Island	1	336
Hongkong	3	1,789
Shanghai	2	1,870
France	1	406
United States	27	10,011
South America	48	32,582
China	15	7,711
Java	2	1,020
Guam	66	36,229
Manilla	1	591
Batavia	2	1,864
Chincha Islands	1	213
Japan	1	692
South Sea Islands	37	24,291
Southern Whale Fishery	9	3,208
Totals	1,089	433,253

In 1884 the number of ships entered inwards was 852 vessels, of 529,188 tons, made up as follows :—

	Vessels.	Tons.
United Kingdom	134	167,626
Australia	535	286,432
Pacific Islands	103	41,259
United States	23	10,935
Mauritius	26	8,535
Java	11	6,659
India	2	1,708
China	2	1,311
Japan	2	591
Singapore	1	237
Cape Colony	1	696
Whale Fisheries	10	3,199

The shipping outwards consisted of 872 vessels, of 534,242 tons, viz.:—

Countries to which Cleared.	Vessels.	Tons.
United Kingdom	136	171,862
Australia	500	263,403
Pacific Islands	100	40,777
United States	9	4,086
Cape Colony	3	1,438
Hongkong	2	662
India	1	651
Germany	1	977
Guam	2	128
Mauritius	1	241
Whale Fisheries	16	2,304

One thing these tables show is that our English ships had, after landing their goods, to go to Australia, "to Guam," to South America, or elsewhere, seeking freight; now our exports are so near our imports that we can send our vessels away loaded and not in ballast.

In 1864 the imports amounted to 7,000,655*l.*; in 1884 to 7,663,888*l.*

In 1864 the exports amounted to 3,401,667*l.*; and in 1884, 7,091,667*l.*

It may be well to give a table showing the exports and imports during the last twenty years, and earlier (see table in Appendix No. 1).

It will be observed that the imports have not increased so largely as might have been expected; but this can easily be explained: First, local manufactures have wonderfully increased; and, second, the price of commodities imported has fallen. For 1*l.* we obtain now in clothing what must have cost us 1*l.* 10*s.* in 1864; and other goods have similarly fallen in value.

The increase of our imports and exports will be seen by a diagram (see Appendix No. 3), which has been prepared by Mr. W. N. Blair, Assistant-Engineer-in-Chief of the colony. One observation may be made on the diagram. The imports show a great variation, jumping up to high figures after the discovery of gold and after the beginning of our railway making in 1870. Our exports have gradually, almost uniformly, increased since 1854, showing few jumps if the value of gold is excluded.

I intend further on to speak of the development of the manufacturing industries. Bearing on this question, it is interesting to note how the population has increased, especially about the larger centres, since 1864. This, of itself, is sufficient to show the development of manufacturing enterprise. Of the maps (see Appendix No. 4, A and B), A shows the present location of the population, whilst that in 1864 is shown on Map B. The maps

also show the density of the population, exclusive of Maoris, in 1881.

The countries with which New Zealand is doing trade appear from the following figures, which show the total value of the imports in 1864 and 1884 respectively:—

	1864.	1884.
	£	£
United Kingdom	3,259,174	4,934,493
Australia and Tasmania	3,429,809	1,635,762
United States	109,222	348,557
Mauritius	65,758	257,670
China and Japan	607	138,892
India	433	73,467
Philippine Islands, &c.	—	144,005
Pacific Islands	15,136	100,181
Europe (excepting United Kingdom)	22,055	26,024
Africa	8,957	324
Canada	1,311	750
British Columbia	3,891	—
South America	77,820	—
Southern Whale Fisheries	1,482	3,763
Other countries	5,000	—

This table points out that for a considerable time after the gold rush we depended in no small degree on Australian merchants. Now we import directly, and only get from Australia her own products, and small quantities of British merchandise.

III.—*Mineral Development.*

In 1864 but little attention had been paid to the development of any mineral save gold and brown coal. Copper mining had been tried, but with little practical result. The gold fields are not producing now so much as they did in previous years. There are many reasons to account for this. There is no doubt that the richer alluvial fields—the shallow alluvial workings—have been worked out, or at all events cannot sustain so large a population as in former years; secondly, the development of public works and of agriculture has drawn a great many persons who obtained a precarious livelihood in mining for gold to other pursuits giving a more certain wage; and, further, it requires considerable capital now to develop many of the gold mines, and that can only be done when the population is considerably larger. The returns from all the gold mines since the opening are as follows: 10,724,850 ozs., at a value of 42,368,192*l.*, and the amount exported during the year 1884, was 988,953*l.*, showing a slight upward tendency from 1883, when the amount was 892,445*l.*; and at the present moment it seems as if there was considerable chance of

further developments in mining enterprises. Many of the mines thought to have been exhausted are now being worked and returning handsome profits. In the North Island, especially in the Maori country, we may expect that there will be discoveries of gold.

Attention has also been paid to a kind of mining different to that which existed in 1864. Up to that time mining had been entirely alluvial, and generally in shallow workings; now there are large sluicing claims and considerable quartz mining. There is also an improved method of separating gold from pyrites, and obtaining better results from quartz by various processes—such as smelting, &c. The number of quartz mines in 1884 was, approximately, 200.

The production of copper, had it not been for its great fall in price, would no doubt have been considerable; but, even with the fall that has taken place, attention is being paid in one or two districts to copper mining. The utilisation of the large quantities of iron-sand in the colony has been often tried, and is still in process of experimentation. The main development during the past twenty years has been in the production of coal. New Zealand is peculiarly situated in reference to coal; there is hardly a district in the colony which has not brown coal mines. Indeed, beginning at the ranges west of Christchurch and going to the Bluff, you can scarcely travel twenty miles without finding a brown coal mine: the brown coal is distributed over such a large area of the South Island. In the Provincial District of Auckland, too, from the Bay of Islands down to the Waikato, there are large deposits of brown coal, some of a very superior quality; and these have been and are being worked. In the Mokau River there is a large coal deposit, and coal has been reported from the Wanganui River. The produce of the coal mines in 1864 was, approximately, 10,000 tons, but it has gradually mounted up to 480,831 tons in 1884, as will be seen from the following statement showing the amount produced each year for the last seven years:—

	Tons.
1878	162,218
'79	231,218
'80	299,923
'81	337,262
'82	378,272
'83	421,764
'84	480,831

On the west coast of the Middle Island there are enormous deposits, thousands of acres of carboniferous land, with seams of more than twenty feet in depth, of the finest steam coal in the world. There is also magnificent gas coal at Greymouth. The area of the coalfields of Westport and Grey may be said to

amount to 129,000 acres; and, as the great drawback hitherto has been the want of proper harbour accommodation for vessels to take away the coal, provision has been made for the construction of two harbours—one at Westport and one at Grey—to provide accommodation for steam colliers. These harbours are being constructed in accordance with the plans of Sir John Coode, and, so far as their construction has proceeded, there seems every chance of a considerable depth of water being obtained. One harbour is at the mouth of a large river—the Buller—and the other at the mouth of the Grey River. The production of true coal has largely increased; it amounted to 418,101 tons in 1884. At the same time, New Zealand, owing to the intercolonial steamers having to take return freight from Sydney, and doing it at a cheap rate, largely imports coal from Newcastle, New South Wales. Newcastle coal, however, cannot compare with the Westport or Grey Valley coal, and does not fetch such high prices, the retail prices being—Newcastle coal, on an average, about 32*s.* to 35*s.* a ton; Westport coal, 33*s.* to 36*s.* a ton; and Grey Valley coal, 33*s.* to 36*s.* 6*d.* a ton.

There is also great probability that attention will be paid to other mineral developments in New Zealand—viz., silver, shale, copper, tin, and other minerals. The region of Collingwood, in the north-west of Nelson, and the whole region of Westland, and the west part of Otago, west of Wakatipu, may be termed mineral regions, which, through their inaccessibility, and being mainly timber lands, can hardly be said to have been prospected, and the Thames and Te Aroha Districts in Auckland are mineral, with gold, silver, and lead in abundance.

IV.—*Pastoral Development.*

I now come to the pastoral development. It has been mentioned that this cannot now be termed the pastoral era of New Zealand, and yet New Zealand largely depends upon its pastoral productions. In 1864 the total amount of wool exported was 16,691,666 lbs., while in 1884 there were 81,139,018 lbs. exported. The number of sheep has increased from 4,937,273 to 14,056,266; the number of cattle from 249,760 to 700,000; the number of horses from 49,409 to 170,000; and the number of pigs from 61,276 to over 200,000. There has been a great change also in reference to the mode of dealing with pastoral pursuits. Before 1864 pastoral tenants were mainly leaseholders, paying a varying rent, according to their tenure and situation in the colony, for the permission to graze their sheep on Crown lands. There are still millions of acres held on pastoral tenure, there being 11,384,603 acres. But sheep and cattle are now fed on freehold land, and this especially in the districts of Canterbury, Hawke's Bay, and

Wellington. In Otago there are more sheep fed on Crown lands than on freehold lands. But there has grown up, in connection with pastoral as well as with agricultural pursuits, the export of frozen meat, and that has encouraged the rearing of sheep on freehold lands that were formerly occupied for grain raising. The agricultural development is closely connected with the pastoral.

V.—*Agricultural Development.*

The agricultural development may be tested in two ways: (1) by the area of land alienated from the Crown; and (2) by the area brought under cultivation. The area of land alienated in 1864 was 7,759,954 acres; in 1884 the area alienated, from the foundation of the colony, was 17,692,511 acres. The area of land under cultivation in 1864 was only 382,655 acres, which included under crop 110,532 acres, and in sown grasses 272,123 acres; whilst in 1884 there were no less than 6,391,075 acres under crop and sown grasses, viz., 1,132,241 acres under crop, and 5,258,834 acres in grass.

Then it may be tested by its products. In 1864 we exported almost no agricultural products, and we imported, as has been stated before, much of our food supplies; but in 1884 we exported 2,706,775 bushels of wheat, valued at 436,728*l.*; 128,450 bushels of barley, at a value of 25,138*l.*; 51,311 bushels of malt, valued at 14,665*l.*; and 2,474,613 bushels of oats, at a value of 267,286*l.* We also exported 33,324*l.* worth of flour, 53,536*l.* worth of potatoes, and 254,069 cwt. of frozen meat, at a value of 345,090*l.* The value of hides exported in 1864 was 11,972*l.*; in 1884, 38,199*l.* In 1864 1,865*l.* worth of tallow was exported, as against 234,829*l.* in 1884. During the last year, through the fall in the price of wheat, and the export of frozen meat, the export of grain has somewhat decreased, as will be seen from the following:—

	1875.	1876.	1877.	1878.	1879.
Flour..... tons	636	497	960	4,031	1,278
Wheat ..... bshls.	548,095	686,059	859,795	1,701,011	2,518,457
Barley ..... ,,	91,622	218,558	107,675	102,476	106,692
Malt ..... ,,	6,885	3,524	1,746	5,951	2,546
Oats ..... ,,	630,325	1,263,957	354,694	302,776	842,649

	1880.	1881.	1882.	1883.	1884.
Flour..... tons	553	3,220	10,932	6,119	3,606
Wheat ..... bshls.	3,120,463	3,761,258	3,188,621	4,897,540	2,706,775
Barley ..... ,,	476,520	494,911	113,334	144,923	123,450
Malt ..... ,,	35,330	60,531	29,345	61,076	51,311
Oats ..... ,,	1,908,132	1,499,260	979,684	1,619,764	2,474,631

Agriculture is now seeking other outlets: orchards are being planted, tobacco is now produced, and linseed is grown.

Treating the forests as a branch of agriculture, it may be noted that the export of timber has largely increased, as the following table, giving the value of the timber exported, will show:—

	£		£
1864	24,771	1875	40,046
'65	12,725	'76	49,847
'66	24,319	'77	50,901
'67	16,110	'78	39,074
'68	15,653	'79	35,735
'69	22,338	'80	51,225
'70	18,610	'81	71,328
'71	20,114	'82	114,700
'72	27,373	'83	149,256
'73	44,039	'84	152,471
'74	44,450		

A forest department has just been started, and attention is to be directed to the conserving and properly utilising the existing forests, and to the creating of new forests. The area of forest lands is about 20 million acres, and of this area about 9 million acres contain useful timber trees.

A large amount of planting has been done, and 5,804 acres planted have been subsidised or aided by Government; and, in addition to this, in the Lake and Maniototo counties large quantities of trees are raised for distribution in the treeless districts of Otago. There have been almost no manufactures of forest products, save timber ware; a little charcoal has been produced, but it is so small as not worth recording. The same danger that has threatened other countries in the treatment of the forests has been felt in New Zealand. Valuable forests necessary for the maintenance of an equable climate have been destroyed to make way for the farmer or stock raiser. It is hoped that the evils that have resulted in other countries from such a course of procedure will be sufficient to ensure attention being paid to tree planting, and to make forest preservation more popular in the colony than it has yet been.

VI.—*Manufactures.*

The manufactures that are first started in a colony are those that are immediately necessary to the colonist in his new surroundings. The bush saw pit and the blacksmith's forge are the pioneer industries: these are necessary for his house and for the settlement. After them come industries dependent on natural products, which are not so easily obtainable from foreign countries. Soap-boiling from tallow comes early; and after a few years the

brewery, even when the malt has to be imported; then tanning leather from hides; but not till a long time after the tannery does the boot factory appear, and the stearine candle works are quite recent. As New Zealand has magnificent timber, one would expect to find woodware factories early. In reality, however, the cheap timber of America, and even lumber from Norway and the Baltic, were imported up to a late period. At the present time local timbers are being so much utilized that there is little timber imported, and that which we receive is mainly the harder woods of Australia. Furniture, however, of the finer kinds has been and is still being imported. The common or coarser kinds were made early, but even for these we depended upon America. In late years furniture factories have attained a high state of excellence, and there are now manufactured in the colony drawing room suites that would not disgrace London or Paris. Shipbuilding was an early industry; small schooners were built in almost the pre-colonial days, and still a few wooden vessels are built; but we have had a new kind of shipbuilding—iron and steel shipbuilding are now amongst our industries, and there have been built in the colony several steamers, namely, a total of thirty-one vessels, with a gross tonnage of 3,153, and horse power 909. This includes one or two steamers framed at home and put together in the colony. The making of engines too has become established. We have patents even for water engines invented in the colony; and we have now in all the chief towns foundries, and boilermakers and mechanical engineers engaged in these works. Some months ago a contract was let for the making of locomotives for our railways.

In 1864, notwithstanding that agriculture had made material progress, hardly any agricultural implements were manufactured; even carts were imported; now, New Zealand is an exporter of agricultural implements; her ploughs and harrows are sent to Australia, and the following, amongst other articles, are manufactured in the colony—viz., ploughs, chaff cutters, grass mowers, winnowing machines, disc harrows, drills, reaper and binders, horse powers, corn crushers, horse hoes, scrub cutters, grass seed threshers, cream separators, churns, &c. Various woollen factories have been established in the colony; there are now no less than six in actual operation; these have all been founded within recent years. The amount of wool manufactured in 1884 was about 1,600,000 lbs., and agencies are now being established to push the sale of the manufactured tweeds in Australia, and small orders have even been sent to Europe. Other woollen factories are about to start, two being near completion. As the habits of the colonists become more luxurious the manufacture of carriages becomes extensive. Carriages of all kinds are now made in the colony, and

some of them are made almost entirely from colonial timber, of which various kinds are very suitable.

I have mentioned that a tannery is an early industry in a colony; we still, however, have to import the finer kinds of leather, and a considerable quantity of ladies' and children's shoes. The imports of leather, boots, shoes, and saddlery in 1864 amounted to 244,727*l.*; in 1884, to 251,267*l.* But we can show now an export of leather, which amounted to 37,227*l.* in 1884; there was no leather exported in 1864. Boot factories are now large and extensive, and an industry which has sprung up along with them is the manufacture of the machinery necessary for conducting a boot factory. Saddlery is now made all through the colony, though still a considerable quantity is imported.

Gas is required for lighting our towns, and, following the manufacture of gas, we have had manufactories established for the making of gas-, lead-, and composition-pipes, gas chandeliers, and all kinds of gas fittings. We have several firms also who make all kinds of brass work, work needed for breweries, distilleries, and other purposes; and these turn out brass work equal to any that can be imported.

Of recent years some attention has been paid to the export of meat and fish in a preserved state; several companies have been started for this purpose, and it is expected that this year the export of canned fish will be considerable, although still large quantities are imported from America. The export of tinned meat has increased; and, no doubt, with the development of orchards the export of preserved fruit will be soon noted in our customs returns. Some attention has been paid to the planting of olives and oranges, and in the north of Auckland there will be a considerable amount of tropical and subtropical fruits produced. A little has been done for the rearing of silkworms; and the planting of the grape has led to the production of wine—both these in very small quantities. A small factory has been started for carpet weaving. The clothing factories are very extensive, and there are factories for hat- and shirt-making. All those things that are needed in our houses are now being manufactured. We have kitchen ranges and stoves equal to any that can be imported, and we have now chemical factories, which produce not only various kinds of acids, such as sulphuric acid, but chemical manures, glycerine, &c.

In our agricultural industries, too, we have seen considerable development during recent years in the production of cheese and butter for export. In 1864, as has been stated, we were importers of cheese, butter, and hams; we now export these. Last year the export of these productions amounted to 104,100*l.* The utilisation of the New Zealand flax has always been difficult; it has been

almost impossible to separate the gum from the fibre. Still we have cordage factories, and, as Manilla is imported, we produce all kinds of twine. There are cordage factories in Auckland, Christchurch, and Dunedin. Small attempts have been made in glassware, and there are considerable numbers of tinware factories. The actual statistics of the factories it is difficult to obtain. Hitherto there has been no complete record taken at the enumeration of the census, but in 1886 it is proposed to find out accurately the number of manufactories, the amount of goods produced, and the number of workmen employed. I estimate the amount of tallow made up into soap and candles for 1885 to be as follows:—

	Tons.
Tallow made up into candles.....	2,459
„ soap	1,371

There are other small industries which it may not be necessary to state—brush factories, &c. One sugar refinery has been established in Auckland. Sugar is brought from the Pacific Islands for the purpose of refining, and the refinery is a large and a very complete one. It may be noted that in Auckland there has been a larger development of small industries than in any other part of the colony. Many of these have arisen out of the timber industries, and some from the fact that the people in Auckland had to depend upon small industries, as their country was unsuited for any large production of either wool or grain. Some of the small industries in the colony may be mentioned. They are manufacture of tobacco and cigars, blacking, confectionery, pottery and brickware, paper, aërated waters, jam, essences, perfumery, writing ink, pianos, organs, taxidermy. There is also a considerable amount of gold and silver smiths' work done in the colony. There are two paper mills producing brown and wrapping papers, and some printing paper. Printing, book binding, and stationery manufacture (from imported paper) are common to all the larger towns. Almost all these industries are the result of twenty years' growth.

The advantage that New Zealand will have in her manufacturing industries are, (1) her climate; she has neither an excess of heat nor cold; (2) her large coal deposits; and (3) never failing water supplies in almost any part of the colony.

VII.—*Increase of Wealth, Advance in Credit, and General Material Advancement.*

The material well-being of the colonists may be tested in various ways. One test is the increase in wealth. The mere amount of money deposited in banks is no criterion of the increase of wealth, because the wealth of the colony may not be in circulation. It can be shown by the increase in the number of houses,

and the different kind of houses now in existence compared with what were in existence in 1864. In 1864 the total number of houses was 37,996; of these 25,463 were constructed of wood, 1,082 of stone or brick, and 11,451 of other materials, principally raupo houses and tents. According to the census of 1881 there were 103,335 houses in the colony, of which number 87,646 were constructed of wood, 4,062 of brick or stone, 2,917 were tents, and the remainder were sod or clay huts and raupo huts. In the towns brick and stone have taken the place of wood, and in the country, in many districts, wood has taken the place of clay and daub. All the houses are being added to and increased in size. Then, money has been expended in roads, fencing, and improvements, as can be seen by the number of acres brought into cultivation since 1864, statistics of which I have given in a previous part of this paper. The furniture in the houses and the clothing of the people have vastly improved during the past twenty years. But even in the accumulation of money there has been an enormous advance. The amount in the savings banks in 1864 was 94,248*l.* 6*s.* 8*d.*; in 1884 it was 1,926,005*l.* The amount of the deposits in ordinary banks in 1864 was 2,461,166*l.*; in 1884 it was 9,372,004*l.*, namely, 6,043,956*l.* bearing interest, and 3,328,048*l.* not bearing interest. And then since 1864 a new mode of investment has been started in New Zealand; I refer to life assurance societies. In 1864 there was little life assurance business done in the colony, and that which was done was in a few European offices. The Government started life assurance in 1869-70, and there is now in funds to the credit of the Government Life Association 972,775*l.* 14*s.* 8*d.* The Australian Mutual Provident Society of Sydney has done large business in New Zealand, and it has at least 850,000*l.* invested in this colony. There are other Australian companies—the Colonial Mutual, the National Mutual, the Mutual Life—all doing a considerable business. I believe it is not an exaggeration to say that one person in every seven holds a policy in a life assurance office, and I doubt if there is any country in the world that can show, in proportion to the population, such a percentage of insured lives as New Zealand can. This is one means of investing savings.

The value of the personal property in New Zealand that is liable to taxation amounts to 40 millions; but if the 500*l.* exemption were included the amount would be 53 millions. The total value of real property held by colonists is 75 millions, and it is calculated that the native lands within five miles of a road suitable for horse traffic are worth 5,750,000*l.*, and the education, church, municipal, and other reserves 11,750,000*l.*

Building societies are very popular, and friendly societies are

widely diffused. There are fifteen friendly societies, with 18,848 members, in the colony, with funds amounting to 255,371*l.* 16*s.* 11*d.*; and there are forty-seven building societies. There are various societies also for lending money, and which receive money on loan and deposit, performing the function, in fact, of a deposit bank. I have not been able to obtain complete statistics of this class, but I estimate the capital invested in these to be 500,000*l.*

As showing also the things that have been done for the material well-being of the people, one may take the length of railways. In 1864 the system was only being begun, and that in a very small way. Since 1870 the colony has undertaken the construction of railways, and there are now 1,527 miles of railway open.

Then, another test of the conveniences of civilised life is the length of telegraph lines and the number of telephones used. The total number of miles on which telegraphs are laid is 4,264, and the number of miles of wires is 10,474. There are telephone exchanges in the following cities: Auckland, Wellington, Nelson, Christchurch, Oamaru, Dunedin, and Invercargill, and there are telephone stations in other places. The total number of telephones used is 1,961. The postal telegraph revenue amounts to 284,245*l.* The number of letters carried in the year 1884 was 16,611,959. The number of telegrams sent was 1,654,305.

In 1864 the means of communication between the principal ports of the colony by sea were very limited, principally by small sailing vessels, a few steamers, and an occasional steamer for Victoria, which, calling first at the Bluff, would afterwards proceed *viâ* Port Chalmers and Lyttelton as far as Wellington, from thence returning to Melbourne. In 1884 the Union Steamship Company of New Zealand had a fleet of twenty-eight fine steamers of an aggregate tonnage of 39,000 gross register; and the ordinary services of the company include weekly boats from Melbourne and Sydney to New Zealand, and *vice versâ*, and almost daily communication with the principal New Zealand ports. In addition, there is a monthly service between Auckland and Fiji; and in the latter colony one of the company's boats plies regularly between the different islands of the group. During the summer months supplementary services are run over all the company's lines, and special excursions are made to the West Coast Sounds. In 1884 a new feature was the introduction of mid winter excursions to the South Sea Islands. The company has also now the contract for the mail service between Auckland and San Francisco.

There is also now direct fortnightly communication between Great Britain and the colony by the splendid steamers belonging to the New Zealand Shipping Company and the Shaw-Savill and Albion Company.

It may be noticed also that, with the increase in the wealth of the population, the possibilities of living in comfort have been greatly increased in another way. The prices of provisions have fallen since 1864. The tables in the Appendix No. 2 will show the contrast in the main articles of food. The prices of clothing have also fallen since 1864 proportionately, if not to a greater extent than those of provisions.

Then, the number of miles of streets and main roads made is very considerable; in fact, it may be said that throughout the length and breadth of the colony there are roads constructed. Of course, as settlement increases, new roads have to be made; and in the bush districts they are very expensive.

The number of incorporated towns where gas is used is twenty-seven. The number of towns incorporated is sixty-nine, and the number of town districts, which are smaller incorporations, corresponding, in fact, with villages, is forty-nine. The number of miles of postal routes is 527, and the annual number of miles travelled with mails is 3,295,901.

Another test is the amount of money order work done. The number of money orders has increased from 16,592 in 1864, to 186,052 in 1884, and the amounts from 78,557*l.* to 572,666*l.*

The revenue of the colony has been considerably augmented:—

	1864.	1884.
	£	£
Revenue	1,712,941	3,955,188
Expenditure	1,522,746	4,101,318

The expenditure has been increased by the fact that large sums have been borrowed for the prosecution of public works. New Zealand has also been placed in a position different from most other colonies, by having had a large war expenditure. The total public debt is 30,649,099*l.*, but, of this amount, large sums have been expended in public works, which are now returning considerable interest. The average interest on all the railways opened for traffic was in 1884 3 per cent. on 11,810,194*l.*

No doubt, as the colony increases in wealth, this rate will be considerably increased.

I might, before concluding, point out what different ideas of well-being people in the colony have had. In the early days, when the settlers first landed, few of them were able to obtain even a weatherboard house—a house of sawn timber, with a brick chimney, was not only a great rarity but almost unknown. They had to live in what were called "whares," or huts made of flax or daub. That

era has now passed. Even in the farthest outlying settlements a settler is almost able at once to live in a well-built cottage, and it is not long till he demands all the accessories of civilisation—roads, postal services, &c.; and as soon as a small township is started it has its own local organ or newspaper.

VIII.—*Probable Future Development.*

As to the future, it is difficult to predict in what particular line development may proceed. I have no doubt that considerable attention will be paid to dairy farming. The country seems suited for it before almost any country. Grass grows all the year round in many districts; there is no snow or cold weather, requiring the cattle or sheep to be housed. The winter, in fact, is evergreen. Then, the colony does not suffer from droughts; water can be got anywhere, and the number of cattle and sheep that can be maintained compared with the acreage far exceeds that of any country in the world; and just as railways increase so settlement will increase. Population will increase, and at a more rapid rate than in old countries. Agriculture will become more intense; smaller farms and industries of a more varied kind will soon be common. It was not until after the railways had been inaugurated—in fact, it was not until late in 1872—that the balance of trade in our favour in cereals was reached. Up to 1872 the balance of imports of wheat and grain and flour was against the colony, but after the railway system began to be developed this was changed, and since 1872 we have been large exporters of agricultural produce. This, no doubt, in future years will take other channels; we may not send more grain, but we shall send more meat, more butter, more cheese, more leather, and we shall send also the manufactured articles that are easily produced from our pastoral and agricultural products. Our gold mining also seems increasing, and attention has been paid in various parts of the colony to the development of other mineral wealth, and manufactures are rising into importance. With the opportunities given to our youth by our educational system, and the bias that they will have in after years towards industry owing to technical training, we may expect a vast increase of material wealth; and our intellectual advancement and our amusements, that should make up so large a share of our social life, will keep pace with our other progress. The outlook of New Zealand may be said to be extremely favourable, and he who has to compare 1904 with 1884 will be able to show as great a contrast as I have pourtrayed between 1864 and 1884.

I have attempted in this paper to point out, briefly, what the colony has done in twenty years, believing that, by making such a

contrast, people outside the colony especially will be better able to gauge our prospects for the future, and also appreciate what our colonising efforts have been. Many things that it would have been interesting to notice I have had to omit. I have not touched upon our form of Government, nor our mode of Government, nor have I referred to the many things of convenience that we possess, as well as many departures that we have taken both in our legislation and in our governmental administration. To have mentioned all these would have made the paper unnecessarily long.

APPENDIX I.

Table showing Total Values of Imports and Exports, from the Year 1841 *to* 1884 *inclusive.*

Year.	Total Value.	
	Imports.	Exports.
	£	£
1841	133,358	17,717
'42	253,989	25,070
'43	191,207	53,945
'44	111,619	49,648
'45	116,811	76,911
'46	155,475	82,656
'47	202,355	45,485
'48	233,844	44,215
'49	254,680	130,662
1850	240,204	115,416
'51	349,540	84,160
'52*	167,205	81,230
'53	597,828	303,282
'54	891,201	320,891
'55	813,460	365,868
'56	710,869	318,433
'57	992,995	369,395
'58	1,141,273	458,023
'59	1,551,030	551,484
1860	1,548,333	588,953
'61	2,493,811	1,370,247
'62	4,626,082	2,422,734
'63	7,024,674	3,485,405
'64	7,000,655	3,401,667
'65	5,594,977	3,713,218
'66	5,894,863	4,520,074
'67	5,344,607	4,644,678
'68	4,985,748	4,429,198
'69	4,976,126	4,224,860
1870	4,639,015	4,822,756
'71	4,078,193	5,282,084
'72	5,142,951	5,190,665
'73	6,464,687	5,610,371
'74	8,121,812	5,251,269
'75	8,029,172	5,828,627
'76	6,905,171	5,673,465
'77	6,973,418	6,327,472
'78	8,755,663	6,015,700
'79	8,374,585	5,743,126
1880	6,162,011	6,352,692
'81	7,457,045	6,060,866
'82	8,609,270	6,658,008
'83	7,974,038	7,095,999
'84	7,663,888	7,091,667

* Province of New Ulster only.

APPENDIX II.

Table showing the Average Prices of Provisions and Live Stock in New Zealand in 1864 *and* 1884.

Articles.	1864. £	*s.*	*d.*	1884. £	*s.*	*d.*
Beer ..... per hhd.	7	10	–	5	–	–
Brandy ..... per gall.	1	4	3	1	5	8
Bread, wheaten .... per lb.	–	0	3½	–	–	1¾
Butter, fresh ..... ,,	–	1	11	–	–	11
,, salt..... ,,	–	1	3½	–	–	9
Cheese..... ,,	–	1	4½	–	1	1
Coffee ..... ,,	–	1	9	–	1	8
Flour, per ton of 2,000 lbs.	26	–	–	11	2	6
Grain, wheat ..... per bshl.	–	8	4	–	4	–
Live stock—						
Cattle ..... per head	12	4	–	5	6	–
Horses..... ,,	30	0	–	19	–	–
Sheep ..... ,,	1	5	–	–	10	8
Meat—						
Beef..... per lb.	–	–	8	–	–	5
Mutton ..... ,,	–	–	8½	–	–	3½
Pork ..... ,,	–	–	9	–	–	5½
Milk ..... per qrt.	–	–	6½	–	–	4¼
Rice..... per lb.	–	–	4	–	–	3⅛
Salt ..... ,,	–	–	1½	–	–	1¼
Sugar ..... ,,	–	–	6	–	–	4¾
Tea ..... ,,	–	3	1	–	2	7
Tobacco ..... ,,	–	6	7	–	5	10
Wine ..... per gall.	–	18	0	–	18	5

Note.—The Statistical Department has prepared a series of diagrams showing—

1 and 1*a*. The Population of New Zealand.
2. ,, Ages of the People.
3. ,, Birthplaces of the People.
4. ,, Religions ,,
5. ,, Education ,,
6 and 7. Births, Deaths, and Marriages.
8 ,, 9. Imports and Exports.
10. Sheep, Cattle, and Horses.
11. Land in Cultivation.
12. Yield of Wheat, Oats, and Barley.
13. Holdings of Land under Cultivation.
14 and 15. Deposits in Savings Banks.
16. Revenue and Expenditure.
17. Miles of Railways Open.
18. ,, Telegraph ,,
19. Shipping, Inwards and Outwards.
20. Deposits in Banks.
21. Capital Invested in Industries.

I append these to my notes, believing they will probably more clearly show than the figures I have given the progress of the colony. To some of the diagrams I have not thought it necessary to make any special reference.

The Diagrams, referred to in the *Note* on p. 570, which are being furnished by Sir Robert Stout, will be issued with the December number of the *Journal*, as they have not yet been received from New Zealand.

Discussion *on* Sir Robert Stout's Paper.

The President in calling upon Sir Francis Dillon Bell to read Sir Robert Stout's paper, said the Council had been much gratified by the offer of this paper, especially at a time when so many representatives of the colonies were assembled in London. Although they had not the advantage of Sir Robert's presence, they were favoured with that of Sir Francis Dillon Bell, the Agent-General for New Zealand, who was well known by what he had done for that country since he had held his present office. New Zealand was one of the most interesting amongst the British colonies, and the information contained in the paper was of very great importance. It spoke rather of the population and the advance in prosperity, wealth, and power of the island, than of the condition of the population, although it entered very fully into the two important subjects of education and crime. They had however the advantage of the presence of gentlemen well acquainted with New Zealand, who would he hoped be able to supplement the information contained in the paper itself.

Sir Francis Dillon Bell begged permission, before reading the paper, to say a few words with regard to Sir Robert Stout, and to the circumstances under which he (Sir Francis) appeared before them that evening. Sir Robert Stout held at the present moment the position of Prime Minister of New Zealand, to which he had attained by very conspicuous ability. He might say this all the more freely, because in a long political life it had not been his good fortune to sit on the same side of politics as Sir Robert; and therefore in saying that he had won his present position by his character and ability, he (Sir Francis) was saying what, as a politician, they would quite understand was entirely impartial. But apart from ability, Sir Robert Stout had not only made no enemy, but enjoyed the good opinion and kindly feeling of all classes of the community in New Zealand. Sir Robert had particularly wished to have this paper read at a meeting of the Statistical Society, and he (Sir Francis) considered it a very distinguished honour and privilege which the Society had granted to him, in Sir Robert's absence, by allowing the paper to be first presented to the Society.

(The Paper was then read.)

The President said New Zealand was one of the children of England. It was but fifty years old, but see what it had become. Listening to the paper the impression made upon his mind was that the name, instead of being New Zealand, ought to be New Britain. Could anything be more characteristic of the rightly directed energy of men than this picture? It showed them how, in the matter of education, the progress of New Zealand had been

equal, and perhaps even greater than its material progress; how in the matter of criminality it had set them an example; how in many social matters it had set an example to its sister colonies, and how as a whole it had realised what in his early days he remembered was expected from it, that it would become the image of its mother. His first acquaintance with New Zealand arose from his political relations with Mr. Gibbon Wakefield in Canada in the year 1842, and he also had a rather intimate acquaintance with one of its islands through his brother-in-law, Edward Ward, who was one of the founders of Christchurch, and that naturally made him feel a very strong interest in the colony. He remembered in 1869 breakfasting with the Under Secretary of the Colonies, and Mr. Sewell the Attorney-General of New Zealand, when one of the subjects of discussion was the debt, and Mr. Sewell was impressed with the conviction that nothing could possibly rescue New Zealand from the burden of a debt of 6 million £. There was now a debt of 30 million £, and yet New Zealand was not only prospering, but notwithstanding that debt, was likely to rise rapidly to a position that would make her one of the first ornaments of the British Empire. He hoped that they might hear from those who had lived in the colony information supplementary to the paper, which would be interesting to those who had not an intimate acquaintance with it, and would therefore ask Sir John Hall, who had been premier of the island, and than whom none could be more competent to instruct and interest them, to open the discussion.

Sir John Hall said it was somewhat difficult to supplement the statements contained in the valuable paper, which so far as they dealt with matters of fact were very full and accurate. It was rather unfortunate that such a review of the progress of New Zealand could not have been brought down to 1886, because it was in that year that the quinquennial census had been taken; the results in the paper so far as they were drawn from the census were not the results down to 1884 but only to 1881. The education of a country was perhaps as fair a test as any mere statistics could afford of the moral and intellectual progress of its people. Members would not thank him for repeating figures which were fresh in their memories, and which proved what large sums the colonists of New Zealand expended upon education; there was however one omission in the statement which it was desirable to supply. Sir Robert Stout gave the expenditure on university education at 26,000*l.*, on secondary education 71,517*l.*, and on primary education 363,000*l.* Those figures made up about 470,000*l.*, but in addition to that, Sir Francis Bell would bear him out when he said that a considerable sum was applied to secondary education from endowments in land which had been set apart for that purpose by provincial legislatures and the general legislature from time to time; so that instead of 470,000*l.* it might be allowed that New Zealand spends about 550,000*l.* upon the education of her people. When they bore in mind that the population of the colony was under 600,000 they arrived at the fact that it was

spending not very far from 1*l.* per head upon education, a sum which for the United Kingdom would be equal to 35 million £; that was a fact not only creditable to the present population of New Zealand, but was a favourable augury for its future intellectual and moral condition. He was pleased to find how comparatively low the criminal record of the colony was. The figures with reference to nationality were curious, and might be of interest at the present moment. It appeared that although the Irish only numbered 10 per cent. of the total population, yet they contributed 30 per cent. of the total criminal class. He would not say one word in disparagement of the Irish; he had employed them very frequently, and always got on very well with them. He found them people with many good qualities, and warm hearted. It was perhaps rather from exuberance of animal spirits, than from a "double dose of original sin," that in a colony where they shared the material prosperity of their fellow settlers, they found themselves to a greater extent in conflict with authority and law, even when that law did not come to them "in a foreign garb." The progress of the manufacturing industries of New Zealand which this paper showed was very remarkable and satisfactory. In another paper lately read before the Society, it was made rather a cause of complaint against colonists, that they did not now take so large a proportion of manufactured goods from the mother country as formerly; when however it was considered that England was now taking wheat from India, where wages ranged from 3*d.* to 4*d.* a day, at a price at which New Zealand could not possibly send it double the distance, with wages at 5*s.* or 6*s.* a day, and also that the colony was only getting half the price for its wool which it formerly fetched, it was obvious that the colonists had less money to send to the mother country for manufactured goods, and therefore unless they made those goods themselves they must go without them. It was not wrong that under those circumstances the colonies should endeavour to stimulate manufacturing industry within their own borders. No country was ever permanently prosperous or rich unless it had a variety of industries, and therefore the figures given in the paper showing the extent to which manufacturing industry was progressing, and which would have been very much more remarkable if they could have been brought down to the year 1886, were to a colonist a most satisfactory feature of the paper. The increased debt of New Zealand was no doubt an object of very natural criticism on the part of the British public, and he must confess that he himself did not like it; but though he regretted that the debt had been increased so rapidly, he was not at all afraid either that the English bondholder would not be always punctually paid, or that the colony could not continue to prosper. Its agricultural development was most satisfactory and reassuring. The area of land under cultivation in 1864 appeared as only 382,000 acres, while in 1884 it was 5,258;000 acres. The difference between an acre of land under artificial grass and an acre not so treated was this, that under natural grass the land would carry about 1 sheep to two or three acres, whereas when it was laid down in English grass its carrying capacity was increased to 3 or 4 sheep

per single acre. The stock carrying capacity of the land and the wealth of the country was therefore by this process made seven or eight times what it was before. That ought to be a perfect assurance to croakers about the New Zealand debt, that the country was perfectly solvent and had a great future before it. In connection with this subject he wished to say one word about a very charmingly written book recently published on New Zealand by the eminent historian Mr. Froude, and entitled "Oceana." It was so pleasantly written that one could not help reading it with pleasure, although as regards New Zealand it was the most misleading book he ever met with. Mr. Froude landed at one end of the colony, saw a very little bit of it, appeared to have associated with one or two people of extreme or peculiar opinions, and then took upon himself to write a description of New Zealand. It was just as if a foreigner had landed in Inverness, had spoken with a Scotch radical or Highland laird, and then written a full description of Great Britain and Ireland. He could not quite agree with Sir Robert Stout in his estimate that the stock carrying capacity of the soil in New Zealand was greater than that of any other country in the world; that appeared to him an over statement. No doubt there were a few farms which carried as much as 9 sheep to the acre, but taking the average of the colony, he did not think the land surpassed the rich flats of Lincolnshire or Essex. The system on which property was taxed in New Zealand appeared to him better than that which prevailed in England. It did not merely tax a man's income, but the whole of his property real as well as personal over and above 500*l.* This was done on the principle that all property whether productive or not was protected by the Government, and that it should pay for that protection. That was a system with which the people of the colony were on the whole well satisfied; it was eminently just, and had greatly assisted the colonial finances. He hoped that the International Statistical Institute which was inaugurated at the recent jubilee meeting of the Statistical Society, would include the question of colonial statistics in their operations. Great facilities were afforded for such a course; the whole of the colonies collected and printed full and accurate statistics, and would be glad to place them at the disposal of the Society. They would probably even introduce any alteration in the mode of collection which would make their work harmonise with any general scheme of statistical information. He considered the Society was much indebted to Sir Robert Stout for so clear and reliable a sample of the progress of a portion of the British Colonial Empire as this paper furnished.

Dr. von Haast said he might give an example of the wonderful progress the colony had made, and which in some respects showed that the country had advanced in spite of the colonists themselves. In 1869 they had a meeting at the Canterbury Museum in Christchurch, and addressed several other institutions in the hope that they would help them to create a University College, but the answer they received from one of them was that they were a hundred years in advance. This was only seventeen years ago,

but what was the state of things now? One professor in Canterbury College in Christchurch had so many students that although his room contained seats for about 100, he had this year to divide two of his lectures to deliver them twice over, because there were more students for each class than he could seat. He had from 150 to 160 students in each class. This showed the intellectual progress of New Zealand, and so long as the people cared so much for education, they need not be afraid of the future welfare of that country. It would in every respect deserve the title of Great Britain of the South, and if the time should come when England wanted help, the strong and powerful New Zealander would stand shoulder to shoulder with her in every emergency.

Mr. Arthur Mills said having spent eight months in New Zealand—a very short time in which to learn anything of a colony so important, so large, and so varied—there were one or two points upon which he should like to say a word. It was of the utmost importance that New Zealand, and every other growing colony, should depend upon itself as largely as possible for its own manufactures. He had watched its growing progress in that respect with the deepest interest, both at Dunedin and at the woollen manufactories at Kaiapoi and Mosgiel. There was however one point he was rather sorry for, not a point in which he could lay the slightest blame upon the colonists or manufacturers of New Zealand, but rather upon the home country. He saw a great many of the agricultural implements known as reapers and binders in use at the time he was there, four or five years ago, but all those implements came from the United States. Now these implements were also made in England, and could have been supplied just as cheaply in New Zealand as the American implements. He was sorry to see this, but since that time he believed that state of things had rather altered, and that there were now manufactured in England and sent to New Zealand a considerable number of these implements. He had not the slightest sympathy with those who deplored the progress of any colony in manufactures. On the contrary, it was a matter greatly to be rejoiced at. They would be leaning on a broken reed if they supposed that for ever they would be able to depend upon these distant customers for all that they might want, and which they would be able increasingly to make for themselves. Reference had been made by Sir R. Stout to education. One point which struck him as one in which they might very well imitate the practice of New Zealand was in the link they had between the elementary and high schools, and between the high schools and the university. Some such link was wanted in England, and indeed there were many points which those who travelled to New Zealand might study advantageously with a view to following their example. A colleague of Sir John Hall's, Mr. Rolleston, gave him a little fact about education there. He said that he could always distinguish the children who had come fresh from the old country from those bred and born in the colony, and in this way, that the children who came from the old country all dropped their "h's," whereas the inhabitants of New

Zealand knew how to pronounce their aspirate. It was a great comfort to him, as a member of that much abused body the London School Board, to find that in a colony some forty or fifty years old, they were going to have that letter replaced in the alphabet. Mr. Mills concluded by expressing a hope that Sir Robert Stout's paper would be attentively studied. For without offering any opinion on the political views of the writer, they ought all to be thankful to any one who contributed to their small stock of accurate information on the actual condition of a colony so important and interesting as New Zealand.

Mr. H. Moncreiff Paul, after calling attention to the fact that the subject of the economic progress of New Zealand had, nine years ago, been brought under the notice of this Society by the late Mr. Archibald Hamilton, whose inquiries extended to the year 1875, stated that on account of special reasons the present paper did not fully cover the interval of the succeeding decade, although official returns were to a large extent available for that purpose. It was most important to keep in view what Sir Robert Stout had indicated as to the discovery of gold in New Zealand proving a means of attracting population thither. First there came the rush to the alluvial gold by those who were for the time all masters; next followed the quartz mining, where capital and brains were brought into play; thereafter, with the land hunger interest in the bulk of humanity, the desire to acquire land and settle down as good colonists after their gold fever had passed away. In regarding the resources of New Zealand, her gold exports should not be lost sight of. She was later than some of the Australian colonies in having gold discoveries, but notwithstanding was able up to the end of 1885 to export some 43 million £ from the commencement of the gold fields. While the imports into New Zealand for 1885 fell short of those of previous years, the reasons for this were not far to seek. In the first place, in 1885 there was a general fall in prices, in which New Zealand shared; and in the second, the large amount involved in the importation of railway plant in earlier years did not occur in 1885. Her exports for that year, on the other hand, despite the fall in values, had, by reason of the large increase in quantities shown development, the total amount being 6,800,000*l.*, against 5,800,000*l.* in 1875. The increase in the acreage under wheat and oats had been large during the past decade. The yield of both in New Zealand continued to be satisfactory, and was much greater than that of any other of the Australasian colonies, showing an average of nearly 26 bushels per acre for wheat, and 35 bushels for oats, figures closely approximating those of the mother country, where presumably the husbandry was more carefully attended to. The export of wool also had largely increased, from 54 million lbs. in 1875, to 86 million lbs. in 1885, valued at 3,200,000*l.* sterling. The bulk of this wool had been shipped to Great Britain; and the imports here from New Zealand closely corresponded, being 237,000 bales, valued at 3,300,000*l.* sterling. It was significant to notice that the New Zealand wool being sold in this market during the present year, would largely

participate in the rise in prices which had recently taken place. Before that rise only 22½ per cent. had been sold, leaving 77½ per cent. to reap the benefit of the higher values now current. Kauri gum was another valuable export, the quantity shipped during 1885 being about 6,000 tons, valued at 300,000*l.* The bulk was sent to this country for sale, although America also took a considerable share, where it was extensively used for varnish purposes. The supply might be said to be inexhaustible. Sir Robert Stout had incidentally mentioned the frozen meat industry; and to show the rapid development of this trade in New Zealand, it might be stated that while it commenced in 1882 with an export of only 252 tons of mutton, in 1885 14,800 tons, valued at 374,000*l.*, were exported. The writer of the paper had passed lightly over the public debt of New Zealand, and perhaps it was politic to do so, as the subject had been discussed from various standpoints in the public press and elsewhere *ad nauseam*. Any comparison of the debt per head of the Australasian colonies with that of the mother country was a mistake, as the two were not strictly comparable. Of the 32 million £ debt in New Zealand 12 million £ had been expended on railways, thereby conferring a great benefit in opening up the country. She had 2¾ miles of railway per 1,000 of her population, against only ½ mile in this country, and 1¾ miles in the United States. Taking into consideration her reproductive works, and her natural products, there need be no fear about New Zealand being able, not only to pay the interest, but to reduce the principal of her debt. The bulk of that debt had been subscribed through the Stock Exchange here, and by the inscription at the Bank of England of fully 50 per cent. of her total indebtedness in a 4 per cent. stock, she had in recent years sensibly reduced the annual charge for interest, and was thus able to borrow on better terms.

Mr. J. H. Kerry-Nicholls while recognising the vast stride which New Zealand had made in her educational system, could not help thinking that it was not quite so practical as it might be in its relation to a new country. He believed that some fully recognised system of technical education would be of great benefit to the colony. He was in favour of the establishment of technological colleges and museums in which various branches of industry might be practically taught. There could be no doubt that the mineral resources of the country were upon a very extensive scale. Vast areas were known to contain all the geological features characteristic of gold formation, and when the Maori country was fully opened out, he believed from what he had seen that important gold fields would be discovered there. The timber resources of the country were also very great, and he had passed through parts of the north island containing forests of extraordinary growth, which could be largely used for the purposes of manufacture. Reference having been made to Mr. Froude's work, although he did not wish to criticise it, he might state that one of its most illogical and unfair statements was that which referred to even an idea of any repudiation by the colonists of New Zealand of their national debt.

Mr. Stephen Bourne pointed out a statistical correction which must be made to some of the tables. The proportion of births, deaths, and marriages was given upon a thousand of population, and the computation would show that the percentage of increase was less at the present time than it was in 1864. This gave an inaccurate idea, because the calculation should have been not upon the whole population, but upon that portion of the population which was capable of child bearing. It would seem that the marriages were less than they were, because of course there was a very much smaller proportion of the population capable of contracting marriages. In 1864 the population below 21 was only one-third of the whole, whereas at the present time it was very nearly one-half. Allusion had been made to some regret expressed in a paper recently read before the Society as to the limited amount of importation of English manufactured goods into the colony. He did not know whether that was with reference to a paper which he (Mr. Bourne) had the honour of reading a short time ago, but whilst he would rejoice in the manufacturing industry of the colonies increasing, it should not be an increase fostered by protective duties, because those protective duties were a tax upon the exports of the country. While the producers of the cereal and dairy produce were hampered with the expense arising from the protective duty upon implements, clothing, and articles of consumption used by themselves and their labourers, it in point of fact limited the export of the country, and so operated very much to its disadvantage. The first object of a new colony should be to develop its natural resources, and then as the population increased and its own resources were developed, to go on to manufacturing.

Dr. G. B. Longstaff said vital statisticians were more and more seeing the great importance of considering what was called the age and sex distribution of population before drawing any deductions. This was more especially necessary in a colony where the population was totally unlike anything of which statisticians in this country had any experience. A population increasing largely by immigration was in a totally different state from one regulated mainly by births and deaths. In reference to this point he would ask to what extent Sir Robert Stout's statistics were to be relied upon, especially with reference to births, deaths, and marriages, or whether there was or was not a large proportion which escaped registration. This question of the health of a colony was quite worth working out with respect to sex and age, provided they could be sure that the published data were sufficiently accurate to make it worth while going into the matter.

Mr. Frederick Hendriks asked if Sir F. D. Bell could give the meeting any information as to the methods employed in New Zealand, in ascertaining the statistics quoted in Sir Robert Stout's paper of the value of real and personal property. The figures to him, as to other Londoners interested in the financial condition of the colony, and desirous of seeing that their first mortgage upon that property was well secured, had rather a reassuring look about

them, and tended towards confirming the favourable view taken by Sir John Hall. Comparing the total of real and personal property with the census of population, it would be found that it worked out an average sum of not much under 250*l.* of value to each inhabitant of New Zealand. This is an amazingly high average, as might be understood by roughly estimating what would be the total value of the real property and personal property of Great Britain and Ireland if worked out upon the same basis of 250*l.* per head of the population. That would give nearly 9,000 millions of capitalised value. Mr. Giffen, the best authority amongst statisticians on calculations of this nature, could perhaps say whether this was an over or under estimate, but to him (Mr. Hendriks) it appeared too high a valuation, and that the 250*l.* per head for the New Zealanders, assuming its correctness, indicated a greater ability to bear the burden of debt in New Zealand than could be said to exist amongst the inhabitants of the mother country. And as part of the New Zealand public debt, say 12 millions out of a total of 31 millions, was really an investment of the colony in railway construction, a good investment, said to yield already 3 per cent. interest, the difference of 19 millions sterling of capital of the New Zealand debt did not appear, upon the basis of Sir Robert Stout's other statistics, to be a greater first charge upon the capital of the colony than 15 per cent. of the whole, which was by no means an unsatisfactory state of things.

Major Craigie said it would be very interesting if the reader of the paper had it in his power to tell them what was thought in the colony to be the probable future, at present prices, of the new frozen mutton trade. On the point raised by Mr. Hendriks he would certainly like to know the method of valuation employed in taxing personal property in New Zealand.

Sir Francis D. Bell, in reply, said it would be admitted by statisticians generally that it was doubtful whether even in Europe any thoroughly reliable and accurate data existed upon which the vital statistics of a community could be based: and no doubt in New Zealand, as in every new colony, there were special elements to prevent the accuracy which, in a matter of that sort, was of such consequence. As to the statistics in the paper, the public officers charged with gathering them together took the utmost pains as to accuracy, and they were as complete as it was possible to get them in a young colony. The method upon which the property tax was collected, was of a self-regulating character. The Government naturally sought to obtain all the tax they could, while on the other hand the taxpayer sought to pay as little as possible. The law provided that real property was to be valued at its value for sale by auction for cash: and though that condition necessarily involved matter of opinion, it was subjected to a test capable of being applied very rigidly, namely, that if the taxpayer undervalued his property unreasonably, it might be taken over by the Government at the price so put upon it by the holder, with 10 per cent. added; while on the other hand if the Government

officials overvalued the property unreasonably, the holder might call upon the Government to take it at their valuation. This test was sufficient to ensure a reasonable accuracy in respect of real property. With regard to personal property the same pains were taken, with the object of ascertaining the state of the property of the community accurately, and the extent to which the exemptions could be claimed, as this exemption extended to all whose property was under 500*l*. It was of essential importance to the Government not to impose taxes of another kind so long as they could raise the money they wanted directly upon the real and personal property of the colony. As to the frozen meat trade, they were only at the commencement of it, and the shippers and growers relied upon it as being one of the steadiest and most certainly increasing industries of the colony.

The PRESIDENT said he was sure he was only interpreting the sentiments of the Society, in thanking Sir Robert Stout and Sir Francis Bell for the paper which had been presented to them.

Prices *of* Commodities *and the* Precious Metals.

By Augustus Sauerbeck, Esq.

CONTENTS:

	PAGE
I.—The Precious Metals and Currencies	581
II.—The Course of Prices	590
III.—The Production of Commodities	601
IV.—Recapitulation of the Causes of the Fall	618
V.—The Present State of the Silver Question	624
VI.—The Future of Prices	629
Appendix.	
A.—Construction of the Tables	632
B.—Table of Prices, 1846-85	636
C.—Index Numbers, 1846-85	642
D.—Summary of Index Numbers	648
Diagrams of Fluctuations.	

The extraordinary and almost unprecedented fall of prices which has characterised the commercial history of the last twelve years, and the consequent depression of trade, have attracted the attention of economists and statesmen, and in face of the unusually great number of publications and speeches which they have called forth, I should not have ventured upon adding to these, had it not been for an entirely new set of figures which I have collected.

Many who discuss the question, and whose opinions generally command deference, appear scarcely to realize the enormous extent of the fall, and it is only by means of very extensive statistics and of a comparison of various periods, that a clear insight into the details and a broad view of the whole can be gained.

My figures have been collected with the greatest possible care, and where given without reserve they may be fully relied upon. Wherever they are based on estimates it is clearly stated, in order that they may be examined and taken for what they are worth. The paper was written at the end of 1885, and revised in May, 1886.

Should I not succeed in throwing any fresh light on this intricate subject, I trust at least to have collected materials which will prove useful to economists, and will save them much of the tedious labour of detailed statistical research.

I.—*The Precious Metals and Currencies.*

Gold and silver have from time immemorial formed the money of nations, and their relative exchange value is stated to have been as follows:—

From	1600 B.C.	to	400 B.C.	1 part gold equal to about	$13\frac{1}{2}$ parts silver.
,,	400 ,,		1600 A.D.	1 ,,	12 ,,
,,	1612 A.D.	to	1640 ,,	1 ,,	$13\frac{1}{2}$,,
,,	1641 ,,		1790 ,,	1 ,,	$14\frac{1}{2}$—15 ,,
,,	1791 ,,		1800 ,,	1 ,,	$15\frac{1}{2}$,,

Owing to the great production of silver in America, the value of this metal gradually sank to $15\frac{1}{2}$ parts for 1 gold. Although both metals were employed, it may be said that before the commencement of this century silver was predominant, and the currencies of the more important countries were based on silver. In 1803 France adopted the bimetallic standard at the ratio then existing, of 1 gold to $15\frac{1}{2}$ silver; it was enacted that 3,100 frs. in gold and 200 frs. in silver (5-franc pieces) containing $\frac{900}{1000}$ fine metal, should weigh 1 kilogramme, and at this rate the mint was obliged to coin any quantity of either metal. Prior to this, in 1797, the United States had already introduced the double standard, but at the ratio of 1 to 15, which was a higher value for silver than was at the time ruling and the consequence was that only silver was retained. This was replaced by paper money later on, and when the States decided upon resuming specie payments, the proportion was altered to 1 gold to 16 silver, a rate below the silver value in France, and at which only gold was retained. England was the first country to introduce the pure gold standard in 1816, while all other important countries, Germany, Austria, Holland, Russia, the East, and South America, had silver; and this remained the more important metal until the great gold discoveries in California (1848) and Australia (1850-51). The enormous supply from these two sources added considerably to the existing stock of gold, and many people therefore expressed the opinion that the value of silver would rise, particularly as very large quantities of this metal had to be exported to India. This rise would probably have taken place had bimetallism not existed in France; gold was sent across and exchanged for the silver 5-franc pieces, and thus a great part of the French silver coinage was exported to India. The effect was in the end just the reverse to that expected. Prices of commodities had risen owing to the gold production, general trade had expanded enormously, and the consequence was a great addition to the wealth of the world. With greater wealth and higher prices, gold forms a more convenient medium of exchange, and as it seemed that there was enough gold in the world, a tendency arose in many countries to substitute a gold currency for silver. The more valuable metal produced in great masses had superseded the less valuable, as often occurs in the case of commodities, when a superior article which can be obtained in increasing quantities takes the place of an inferior one.

It is said that it was the intention of French statesmen before the war of 1870 to give up bimetallism, but the war intervened, and Germany adopted the gold standard, throwing large quantities of silver on the market, which forced France to stop the free coinage of silver. Other countries followed the example of Germany, and this resulted in a great falling off in the demand for silver, at a time when the silver production of America was quickly increasing. The price of silver was still on a fair level in 1874, but from 1875 it declined rapidly, and Germany had soon to stop the sale of her remaining silver on account of the great loss to which she had to submit.

With regard to the production of gold and silver during the last hundred years, I copy the following figures in kilogrammes pure metal, as published by Mr. Soetbeer; the value is calculated at the uniform ratio of 1 gold to $15\frac{1}{2}$ silver (viz., at 136·567*l.* per kilo. gold, and 8·811*l.* per kilo. silver) :—

[Value columns in millions of £ and decimals, thus 2·43 = 2,430,000*l.*]

	Average Annual Production.		Value of Average Annual Production.		
	Gold.	Silver.	Gold.	Silver.	Total.
	Kilos.*	Kilos.*	£	£	£
1781–1800.....	17,790	879,060	2·43	7·74	10·17
1801–10.....	17,778	894,150	2·43	7·88	10·31
'11–20.....	11,445	540,770	1·56	4·76	6·32
'21–30.....	14,216	460,560	1·94	4·06	6·00
'31–40.....	20,289	596,450	2·77	5·25	8·02
'41–50.....	54,759	780,415	7·48	6·87	14·35
'51–55.....	197,515	886,115	27·00	7·81	34·81
'56–60.....	206,058	904,990	28·14	7·97	36·11
'61–65.....	185,123	1,101,150	25·29	9·70	34·99
'66–70.....	191,900	1,339,085	26·21	11·80	38·01
'71–75.....	170,675	1,969,425	23·31	17·35	40·66
'76–80.....	172,800	2,450,252	23·60	21·59	45·19
'81	157,900	2,592,639	21·56	22·84	44·40
'82	146,900	2,769,065	20·06	24·40	44·46
'83	143,940	2,895,520	19·66	25·51	45·17
'84†.....	144,000†	2,860,000	19·67	25·20	44·87

* One kilogramme equal to 2·2046 lbs. avoirdupois pure metal, or equal to 35·07 ozs. standard gold ($\frac{22}{24}$ fine) and 34·76 ozs. standard silver ($\frac{222}{240}$ fine).

† 1884, provisional figures. Mr. Soetbeer puts the production of gold at 140,000 kilos. only, but according to Mr. Burchard's figures the production in 1884 was larger than in 1883.

Mr. Soetbeer's figures since 1861 are much higher than those published in England, but I willingly accept his figures, as for all my arguments it is as well to take the highest estimates.

It will be seen that the production of gold has fallen off

materially while that of silver has rapidly increased. The present production may be roughly estimated as follows :—

Gold.	£	*Silver* at 1 : 15½	£
United States	6 mlns.	United States	10 mlns.
Australia	6 „	Mexico	6 „
Russia	4½ „	South America	5 „
Other countries	3 „	Germany	2 „
		Other countries	2 „
Total, say	19½ „	Total, say	25 „
		Value at 46*d.* per oz., about	19 „

The monetary reforms in Germany, Holland, and Scandinavia, and the resumption of specie payment in Italy and the United States, caused a considerable extra demand for gold, which commenced in 1871, and which I estimate as follows up to the end of 1884 :—

	Mlns. £	Mlns. £
Germany, total coinage	96	
Bars in the Imperial Bank (say)	4	
	100	
Deduct : Coins melted and exported* 15—20		
Gold currency before the reform† 10		
—	30	
Net requirements at least		70
	$	
United States, gold currency, 1884	557	
„ 1873	135	
Net requirements	422 =	85
Italy		13
Holland and Scandinavia		10
Total		178

With regard to the consumption of gold in arts and manufactures there are greatly varying estimates from 10 to 16 or even 20 million £ per annum, but I doubt whether in these estimates, especially in the high ones, sufficient allowance has been made for the old metal used. Mr. Soetbeer in the estimates recently published puts the present consumption in Europe and North

* The estimates published in Germany put the quantity melted and exported at only 14 million £. Coins were only used to any extent for industrial purposes during the first few years when they were of full weight, and it is said that bars are generally used at present.

† The German gold coins withdrawn only amounted to 4½ million £, but a great deal of foreign coin was also in circulation.

America at 110,000 kilos. gross, and after allowing for 20,000 kilos. old metal, at 90,000 kilos. net, equal to 12¼ million £. He estimates the total net consumption during the fourteen years at 1,190,000 kilos., equal to 162 million £. In addition we have the requirements of Spain, Portugal, Austria, Russia, Turkey, Asia, Africa, Australia, Central and South America, which cannot be put at less than 5 million £ per annum. India, which retained 5 million £ annually during the three years 1882-84, has taken altogether during the fourteen years 1871-84, if the statistics are correct, 33½ million £. Australia has retained about 14 million £, Austria and Russia 8 and 5 million £ respectively.

Adding the various figures, we obtain the following total of the requirements during the whole period of fourteen years 1871-84:—

	£	
Extra requirements for monetary reforms	178	mlns.
Requirements of various countries	70	,,
Consumption in arts and manufactures	162	,,
Total	410	,,
Production during the same period according to the highest estimates	316	mlns.
Apparent *deficit*	94	,,

Were we to accept the English estimates of production at 19—19½ million £ on the average, say a total of 270 million £, the deficit would even amount to 140 million £. We may state at once that any such important deficit cannot be statistically proved. There are only two countries by which the same could have been covered, viz., England and France. The import and export statistics of France show a surplus in the imports of gold for the fourteen years of 48 million £, and they must be dismissed as perfectly unreliable; no doubt the exports cannot be fully returned. The statistics of the United Kingdom give the following result in millions of £ and decimals:—

	Gold.		Excess of	
	Imports.	Exports.	Imports.	Exports.
	£	£	£	£
1858–70.....	229·3	162·4	66·9	—
'71–78.....	161·7	140·7	21·0	—
'79–84.....	65·6	76·0	—	10·4

The import figures of England are also in excess of the exports, but while in the period of 1858-70 this excess amounted to 67 million £ (5,140,000*l.* per annum), it only reached 10½ mil-

lion (760,000*l.* per annum) in the period of 1871-84. (It will be seen that since 1879 when the United States resumed specie payment, and commenced not only to retain their own production, but to draw upon the European resources, there is an actual excess of exports of 10½ million £; 1884 was particularly noteworthy, because Australia for the first time since the gold discoveries imported gold from England instead of sending the usual supply of 3—6 million £). Taking Mr. Soetbeer's estimate of the consumption in the arts and manufactures of about 2 million £ annually, or 28 million £ for the whole period, the actual deficit can have been only about 18 million £.

France and Belgium coined 25 million £ silver (legal tender), and these may have taken the place of a similar amount of gold; but any large decrease in the gold currency cannot be proved. As I have taken the largest figures of production, and very moderate estimates of the extra requirements, we must assume that either the official returns of the United States currency, or the estimates of the consumption are too high.

It would be wrong to say that the metallic circulation had diminished or had not increased at all. Silver has also been coined, as previously mentioned, in France and Belgium about 25 million £, and in the United States under the Bland Bill about 40 million £, up to the end of 1884.

Mr. Soetbeer has attempted to calculate the amount of the metallic money in circulation in the world excluding Eastern Asia, at various epochs, and gives the following figures with all reserve, mentioning that they cannot of course pretend to any statistical exactness, and must be taken as very rough estimates:—

[In millions of £, converting the mark at 1*s.*]

	1850.	1860.	1870.	1884.
Gold	167	395	536	655
Silver	481	441	410	438
Total	648	836	946	1,093
Increase per cent.	—	29·0	13·20	15·50
Average annual increase per cent.	—	2·9	1·32	1·11

Assuming these estimates to be correct, we find an increase in the last period of 147 million £, but considerable allowance has to be made for paper money withdrawn, &c. In the United States the uncovered issue is less by about 80 million £ (217 million $ in 1884 against 612 million $ in 1871). In Germany a good many small notes have been replaced by gold, viz., 2½ million £ state

notes (reduced from 190 to 141 million marks), and 16½ million £ bank notes of 60 marks or less, and supposing that of the latter 50 per cent. were not covered, the total additional money required in Germany was 11 million £. In Austria and Russia the banks have increased their metallic reserve by 8 and 5 million £ respectively, thus simply strengthening their position without any increase in their circulation, the greater paper issue in Russia being balanced by its depreciation. If we deduct these 104 million £, there remains an increase of 43 million £, equal to only 4½ per cent.

Since 1873 the uncovered note issue of the Bank of France, which at that time had forced currency, has decreased from 84 million £, its highest point, to about 20 million £. Taking this into consideration, there would be an actual decrease in the quantity of money since 1873, if the estimates of the total stocks are correct.

Speaking generally we may say that while during the twenty years 1851-70 about 15 million £ gold and silver were annually available for monetary purposes, the whole quantity of gold thus available during the fourteen years 1871-84 has only served to meet an extra demand for changes in the monetary systems of some countries, and that the total monetary circulation in Europe and the other gold using countries has not increased. By the demonetisation of silver this metal is excluded from the European mints, and whatever quantity is not required under the Bland Bill (which decrees that at least 2 million silver dollars should be struck each month in the United States), and in arts and manufactures, has to be exported to the great silver filter, India, and the more we have to export the cheaper we have to sell.

Before 1871 England had the gold standard, France the double standard, and Germany silver; and as in France one metal could at any time be exchanged against the other at the fixed ratio of 1 gold to 15½ silver, it is clear that prices in all countries with metallic currency, whether expressed here in gold or there in silver, were regulated by both metals conjointly, and any increase in the production of silver had the same effect as an increase in the production of gold. In consequence of the adoption of the gold standard in Germany, and the stoppage of silver coinage in France, silver has been discarded by all European countries, and gold has become the only standard measure of value. The old silver coins circulate still in the place of gold, but the new silver produced cannot have any direct influence upon prices in the gold using countries, as it cannot like gold bullion be paid into the banks or be converted into coins at the wish of the holder. Silver retains

of course its influence upon prices in the silver using countries, but its real value as expressed in the exchanges on gold using countries will vary in the relation of its supply to the natural requirements of the silver countries. If prices of commodities are low, less silver will be required, and excessive supplies will cause a fall; if prices are high, the demand will increase and the value of silver will rise. It will therefore follow to some extent the general course of prices of commodities.

The currency reforms and the insufficient supply of gold under the new condition of affairs, while the population of Europe and North America increased by about 18 per cent. since 1870, and while the production of commodities increased at a still greater ratio, must, it can hardly be doubted, have had a depressing influence upon prices.

We have still to inquire whether any great advance has been made in economising money, a point on which great stress has been laid by many economists. It is said that money has of late years been economised in international trade, balances being frequently paid by the transfer of stocks. This may be true to some extent, but if we look at the constant bullion movements still going on between this country, the United States, France, and Germany, it must be admitted that the progress in saving money in this direction cannot as yet be very great.

Bills of exchange have for a very long time been used as extensively or even more extensively than at present, of course in comparison to the amount of transactions. They are now not only on the decrease, but from inquiries I have made in various directions, it appears that the number of endorsements (consequently also the number of payments they effect) is decidedly less than it used to be, and drafts at sight or short date have become more numerous. Cheques for remittance from one town or country to the other, and telegraphic transfers all over the world, have certainly greatly increased, and have taken the place of long-dated bills. The effect of this on the use of money is probably the reverse of economising, for as a contrivance towards this latter end I consider a bill of exchange to be superior to a cheque or transfer. By means of endorsement it can effect a great many payments, and requires money only at due date. For every such endorsement* a separate cheque may of course be substituted, but then it is cash payment for credit; for each cheque money may be claimed, and bankers have to keep sufficient cash reserves for this purpose.

With regard to the cheque, clearing and transfer systems it

* An endorsement may also represent a sale; if a bill is discounted it does not effect a payment, but is exchanged for money like a commodity.

does not appear that any important change has taken place in the United Kingdom, and it has been stated by Mr. Giffen that this country was fully "banked" some thirty years ago. The use of cheques may have increased a little in the country, clearing houses having been established at Manchester, Newcastle, and several other places, but this cannot so far make any important difference. At Liverpool a very great proportion of the transactions is still paid in cash. In the banking centre, London, the system has not expanded, the clearing house returns showing no increase since 1873, the year of the highest prices, as will be seen from the following figures :—

	1873.	1885.
	Mln. £	Mln. £
Clearing on Stock Exchange settling days	1,038	935
,, consols ,, ...	250	249
,, other days	4,783	4,327
Total	6,071	5,511*

* Taking the year at 307 working days, the figure for 1885 is 18 million £ per day, viz., 39 million £ on Stock Exchange, 20¾ million £ on consols settling days, and 16 million £ on other days, and on this basis it may be assumed that the amounts cleared for the Stock Exchange business amounted to about 600 million £, and those for general business to about 4,900 million £. It must, however, be remembered that by the custom in London brokers receive a cheque from the buyer and give a fresh cheque to the seller, and that therefore a great many transactions appear for double the amount in the clearing returns, or even for three and more times the amount if they go through the hands of various brokers.

There is an actual decrease, but there was more speculation in 1873. The higher prices at that time are to some extent balanced by the greater quantities at present.

In the United States the clearing system received its principal development in the years 1863 to 1869, and no notable advance has since taken place. In Germany the introduction of the giro (transfer) system of the Imperial Bank has been a great success, and has rapidly expanded, but though it is an enormous convenience, the actual economising of money by the same is, I believe, somewhat exaggerated. Transfers can only be made if funds stand to the credit of the transferer, and in order to repay the bank for the trouble customers have to keep larger balances. Thus the current accounts of the Imperial German Bank have increased from about 5 million £ in 1875 to about 12—14 million £ in 1885, whilst the bank usually holds about 60 per cent. of its liabilities in cash.

In other countries there is no material progress, though clearing houses have also been established in Paris and Vienna.

And if in the larger mercantile transactions no great economising of money is discernible, it can still less be in the small payments of the day. Population and production increase, and with every such increase more money will be required for the daily retail payments, wages, &c., unless prices should decline. During the prosperous years 1872-73 the wealth of many countries greatly expanded, and the decline in retail is as yet very unimportant as compared with the great fall of wholesale commodities. Particularly such articles as are constantly paid with coin, like meat, butter, vegetables, spirits, beer, tobacco, &c., have fallen less than others or have not fallen at all, and wages have only receded to a small extent.

The interesting fact that the United Kingdom increased her monetary circulation considerably from 1850 to 1873; and that the United States and Germany are the only countries which have acquired a material increase in their currency during the last ten or fifteen years, proves that notwithstanding an extensive use of the substitutes, a great development in wealth and commerce requires also an increase in the quantity of money.

II.—*The Course of Prices.*

In reviewing the course of prices of commodities* during a certain period it must be remembered that the longer the period the greater the difficulty of obtaining exact information, and that all such comparisons can only give an approximate idea of the change which has taken place. In many cases such as the "Gazette" prices of corn, the prices of metals and oils, for which there is no great range in the quotations, we have of course most reliable data, but in the case of other articles the descriptions are frequently altered and the former prices can only be approximately stated. A constant change is also taking place in the quality of some articles, in their cost of production, and in their supply and demand. The cheaper cost of production, or the preference shown by consumers for a certain article, be it in consequence of a change in fashion or of its greater utility, may have a very important influence on the prices of similar commodities. Thus the low prices of wheat may affect rye and other corn; cotton has to a great extent superseded linen; the great increase in the production of fine wool and of jute has adversely influenced the lower classes of wool and other textile fibres.

But in comparing prices we must overlook these facts, and presume that each article retains the same importance during the

* For full particulars see Appendix.

whole period; we must trust that in a great number of commodities any inequalities will balance each other, and that the average of the whole will give a fair illustration of the actual result.

The comparison is generally made with 1872-73, but these were years of great inflation, when prices were carried to an unusually high point, and if we are to ascertain whether any real change in the price level has taken place, it will be necessary to take the average prices of a number of years, and to compare whole periods with each other, as the ordinary upward and downward movements are principally dependent upon supply and demand, and upon the extension or contraction of credit, upon confidence and distrust. The action of the precious metals is on the whole more on average prices, though large discoveries may also have a direct influence in raising prices, while decreased production or increased demand for the precious metals may aggravate or prolong an existing depression.

The whole epoch since the crisis of 1847 I have divided into four periods, viz.:—

10	years	from 1848	to the crisis in	1857.
9	„	'58	„	'66.
11	„	'67	to	1877.
8	„	'78	„	'85, and still in progress.

The eleven years 1867-77 have served as my standard, and I have calculated all comparisons in proportion to the average of this period. Prices reached in it their highest elevation since the time of the new gold discoveries, and the period might have been closed after seven years with the partial crisis of 1873, but 1874 was still high, and in 1875-77 prices though declining, kept on the whole very near an average point, and were but little lower than in 1870. I therefore preferred to couple these four years with the previous seven, thus obtaining an average of a longer period, which at the same time is if anything slightly lower than that of the seven years only, and gives in the case of many articles a rather better average for comparison, as the influence of the exorbitant prices of 1872 and 1873 is lessened by the addition of a greater number of lower years. The period indeed comprises more unfavourable than good years. There are four years of depression, 1867-70; three of rising prices, 1871-73; and four of falling prices, 1874-77; in three years prices were above the average, in two years on a par, and in six years below the average point.

In proof that this period is a very satisfactory one for any comparison, I may mention that its average point corresponds exactly with the average point of the whole twenty-five years—from

1853-77—since the time when the new gold discoveries appear to have had an effect upon prices. Therefore a comparison of the aggregate prices of all commodities in a certain year with the eleven years 1867-77, is equivalent to a comparison with the whole twenty-five years 1853-77.

All details as to prices, index numbers and groups of index numbers will be found in the appendix, and I merely give the average results of the groups of articles. To the four periods mentioned I have added the separate figures for 1885, the average of the twenty-five years 1853-77, and of 1848-52, the five lowest years before 1885. I have further included the three periods from 1818-27, 1828-37, and 1838-47, though I do not attach to them any great value, as prices in England in the first half of the century were so greatly interfered with by legislation—protective duties and prohibitive laws.

Table of Average of Index Numbers (Percentages), 1867-77 = 100.

Periods.	Corn, &c.	Meat and Butter.	Sugar, Coffee, and Tea.	Total Food.	Minerals.	Textiles.	Sundry Materials.	Total Materials.	Grand Total.	Silver.*
1818–27	109	90	151	111	128	105	106	112	**111**	98†
'28-37	95	78	127	96	97	94	92	91	**93**	98†
'38-47	102	80	122	99	93	82	93	90	**93**	98
'48-57	95	79	87	88	93	80	94	89	**89**	100
'58-66	91	89	100	92	94	117	103	105	**99**	100·9
'67-77	100	100	100	100	100	100	100	100	**100**	96·4
'78-85	82	99	79	88	74	73	84	78	**82**	84·1
1885....	68	88	63	74	66	65	76	70	**72**	79·9
1853-77	100	93	99	97	100	104	103	102	**100**	99
'48-52	80	72	78	77	77	72	79	76	**76·4**	99

* Silver compared with 60·84*d.* per oz., being the parity between gold and silver at 1 : 15½.

† Silver 1818-37, approximate value.

As compared with the average prices of the eleven years 1867-77, we have therefore the following *decline* :—

	Average, 1878-85.	1885 only.
	Per cnt.	Per cnt.
Corn (wheat, flour, barley, oats, rice, and potatoes)	18	32
Meat, &c. (beef, mutton, pork, bacon, and butter)	1	12
Sugar, coffee, and tea	21	37
All food	12	26
Minerals (iron, copper, tin, lead, and coals)	26	34
Textiles (cotton, flax, hemp, jute, wool, and silk)	27	35
Sundry materials (hides, leather, tallow, palm oil, olive oil, linseed oil, petroleum, indigo, soda, nitrate, and timber)	16	24
All materials	22	30
All commodities	18	28

The result of this inquiry is therefore that there is a general depreciation of *at least* 18 per cent., as illustrated by the average prices of the eight years 1878-85, and of possibly 28 per cent.* supposing that on the average we keep the prices of last year.

The characteristic point of the last period is that not only the whole of it, but even the highest year (1880=88) is below the lowest during the preceding twenty-five years (1858=91).

The decline in the price of silver in consequence of its demonetisation is for the eight years very nearly the same as for commodities, viz., 16 per cent.; but in 1885 it only stands 20 per cent. lower, against 28 per cent. in the case of commodities. It must, however, be remembered that the price of silver is still artificially upheld by the working of the Bland Bill, under which at least 24 million $ per annum, equal to one-fifth of the total production, must be coined in the United States. A further decline appears probable should the Bill be repealed, and the price would have to fall to 44*d.* per oz., in order to bring it to the present price level of general commodities; but other influences may be at work,

* The decline has made further progress during the current year, and amounts to fully 30 per cent. for the first six months; corn 34; meat, &c., 11; sugar, coffee, and tea 40; food 27; minerals 34; textiles 39; sundry materials 29; all materials 33 per cent. lower.

and it cannot of course be pretended that silver must necessarily follow exactly the same course as other articles, although the tendency will as a rule be similar.*

In 1849, which had before 1885 been the lowest year during the present century, general prices stood on the average 26 per cent. below the eleven years 1867-77, but in 1885 they were 28 per cent. lower, and the whole advance since the new gold discoveries has been more than lost. Were we to leave out meat and butter, which are now much dearer than in 1849, we should find that the remaining articles are now 31 per cent. below an average point against only 24 per cent. in 1849.

But in comparing the present time with 1849, it is necessary to remember that 1849 followed a period of great suffering of the masses brought about by the potato disease in most European countries, by the Irish famine, and the severe commercial crisis in 1847. The continent was further disturbed by revolutions and wars. Nothing of the kind is perceptible at present. There is no crisis in the ordinary sense of the word, there are no political events seriously influencing trade, the harvests have of late been plentiful, food is cheap, and everything else is cheap.

I may here draw attention to the diagram at the end of the paper, illustrating the up and down movements of the average prices in each year, and the principal political and commercial events. A second line (dotted) is inserted showing always the average of ten years. It obliterates still further the ordinary fluctuations, and gives a clear picture of the gradual movement of the average prices of whole periods, indicating the great downward course during the first half of the century, which reached its lowest point in the decade 1843-52 (= 82), the upward wave with the highest period from 1864-74 (= 102), and the retrograde movement since.

It may be argued that index numbers do not in the aggregate give a correct illustration of the actual course of prices, as they take no notice of quantities, and estimate all articles as of equal importance. This is true to some extent, particularly if a comparison is made with very remote times, and if in the interval a radical change in the supply and demand of a certain article has taken place. To calculate each year separately according to quantities would be an undertaking of very great labour, and besides the statistical data would not be fully available, but I have worked out the three most important years for our comparison, viz., 1849, 1873, and 1885, according to the importance of each

* Silver touched 42*d.* in August, which is 31 per cent. below the old level.

article in the United Kingdom, on the average during the three years 1848-50, 1872-74, and 1883-85 respectively. For the details as to the compilation of the figures I refer to the chapter on the production of commodities. For the present purpose I have taken the nominal values in each period calculated at the average prices of 1867-77, and have multiplied the nominal value of each article with my ordinary price index number (percentage) for the respective year; the total has been divided by the total nominal value, and the real average percentage of prices has thus been ascertained. The result is as follows :—

	Values based on Average Prices, 1867-77. Mln. £ and decimals.	Altered Values at Index Numbers. Mln. £ and decimals.	Ordinary Index Numbers (Percentages). 1867-77 = 100.	New Index Numbers, according to the Importance of the Commodities. 1867-77 = 100.
1849	294·8	213·7	74	72·5
'73	525·4	605·1	111	115·2
'85	617·4	439·7	72	71·2

The new figures do not differ materially, but make the fluctuations even more striking.

In the adjoining table I give the average prices of the various commodities in England (according to my figures in the appendix) during six periods, which I believe will be very instructive. I have added last year's prices for a comparison, also the average of the twenty-five years 1853-77, of the five low years 1848-52, and of fifty years 1828-77. In comparing the six consecutive periods we find a few points which are particularly striking, viz., the rising tendency of animal food products, only checked since 1884, and the falling tendency of a good many articles from the fourth, or even from an earlier period, notwithstanding that on the whole the fifth period was the highest.

Average Prices.

				1828-37.	1838-47.	1848-57.	1858-66.	1867-77.
	Silver ...	.....	d. p. oz.	59¾	59⅝	60¾	61⅜	58¼
1	Wheat...	English	sh. p. qtr.	56	60	54	47⅞	54⅓
2	,, ...	American	,,	—	—	—	—	56
3	Flour ...	Town made white.....	sh. p. 280 lbs.	48	51	50	43½	46
4	Barley...	English	sh. p. qtr.	32	34	32½	34	39
5	Oats.....	,, ...	,,	22	23	22	23	26
6	Maize ...	American mixed	,,	—	—	34	32	32½
7	Potatoes	Good English	,, ton	—	—	101	97	117
8	Rice.....	Rangoon (or Madras) (a)	,, cwt.	10	11	9¾	10	10
9	Beef ...	Prime (b).....	d. p. 8 lbs.	44	44	43	49	59
10	,, ...	Middling (c)	,,	39	39	37	43	50
11	Mutton	Prime (b).....	,,	48	50	50	56	63
12	,,	Middling (c)	,,	46	44	43	50	55
13	Pork ...	Large and small (b)	,,	52	52	46	51	52
14	Bacon ...	Waterford	sh. p. cwt.	45	51	62	66	74
15	Butter...	Friesland fine	,,	92	97	98	113	125
16A	Sugar ...	West Indian (British) refining (d) ...	sh. p. cwt.	31	36	23½	22½	23
16B	,, ...	Beet (German or French)	,,	—	—	—	—	24
17	,, ...	Java.....	,,	—	—	27	29½	28½
18A	Coffee ...	Plantation (low middling) (e)	,,	72	75	53½	74	87
18B	,, ...	Brazil (good)	,,	46	37	43	57	64
19A	Tea	Congou common	d. p. lb.	20	14	10	12½	11¼
19B	,, ...	Average import price	,,	—	19	14¾	18¼	17¼
20	Iron.....	Scotch pig	sh. p. ton	—	66	57	54½	69
21	,, ...	Bars	£ ,,	7¾	7¾	7⅓	7	8¼
22A	Copper	Chili bars	,,	—	—	96 (h)	90	75
22B	,,	English tough cake	,,	94	91	105	99	81
23	Tin	Straits.....	,,	72	78	101	113	105
24	Lead ...	English pig	,,	17½	18⅔	20⅓	21	20½
25	Coals ...	Wallsend Hetton in London	sh. ,,	26½	21½	19	19¼	22
26	,, ...	Average export price (f)	,,	11½	9⅓	8½	9⅜	12⅓
27	Cotton...	Middling Uplands	d. p. lb.	7⅓	5⅜	5¾	14½	9
28	,, ...	Fair Surat (Dhollerah)	,,	5⅔	4¼	4¼	11¼	6¾
29	Flax.....	Russian	£ p. ton	45	44	45	52	47
30A	Hemp ...	Manilla fair roping	,,	—	29	40	29½	43
30B	,, ...	St. Petersburg clean	,,	31	35	36½	33	35
31	Jute.....	Good medium	,,	—	15½	17	20	19
32A	Wool ...	Merino, Pt. Phillip fleece	d. p. lb.	—	17½	18½	22¾	21¼
32B	,, ...	,, Adelaide grease	,,	—	—	8½	11	9⅞
33	,, ...	Lincoln half hogs	,,	13	12¾	14	21½	19⅝
	,, ...	Southdown, E. and W.	,,	13¾	12½	13¼	18⅜	16
34	Silk	Tsatlee	sh. ,,	17	19	18	22½	23
	,, ...	Organsins	,,	30	28	29	39	42
35A	Hides ...	River Plate dry	d. p. lb.	8¼	7	7¼	9¼	9
35B	,, ...	,, salted.....	,,	—	—	—	6⅔	7
36	Leather	Crop hides, 30—45 lbs.	,,	13¾	12	12⅛	14⅜	16
37A	Tallow...	St. Petersburg Y.C.....	sh. p. cwt.	41	46	48	48½	45
37B	,, ...	Town	,,	—	—	49 (h)	50	45
38	Oil	Palm	£ p. ton	30	34	37	41	39
39	,, ...	Olive	,, tun	53	50	50	54	50
40A	,, ...	Linseed	,, ton	32	27	32	34½	30
40B	Seeds ...	Linseeds.....	sh. p. qtr.	45	46	53	60	60
41	Petroleum	.....	d. p. gall.	—	—	—	—	12½ (k)
42	Soda ...	Crystals	sh. p. ton	—	—	—	—	92
	Alkali ...	Export price	,,	—	204	174	183	185
43	Nitrate of soda	.....	,, cwt.	22	17	16	14⅜	14
44	Indigo...	Bengal, good consuming	,, lb.	5½	5	4¾	6¾	7¼
45A	Timber	Hewn (g)	,, load	61	68	71	68	60
45B	,,	Sawn or split.....	,,	—	—	—	58	54

(a) Rice, Calcutta cargoes before 1846.
(b) Meat, prices of live meat (sinking the offal) before 1844.
(c) Meat, prices of St. Thomas's Hospital before 1844.
(d) Sugar, British Muscorado before 1846.
(e) Coffee, Jamaica fine ordinary before 1843.

Average Prices.

1878-85.	1885 only.	25 Years, 1853-77.	5 Years, 1848-52.	50 Years, 1828-77.				
51⅛	48⅝	60¼	60⅛	60		Silver ...	...	d p. oz.
42	33	54	43	54½	1	Wheat...	English ...	sh. p. qtr.
45½	35	—	—	—	2	,, ...	American ...	,,
36	29	46½	40	47	3	Flour ...	Town made white ...	sh. p. 280 lbs.
33	30	37	27	34½	4	Barley...	English ...	sh. p. qtr.
22	20¼	25	18½	23	5	Oats.....	,, ...	,,
26	23	33½	29	—	6	Maize ...	American mixed ...	,,
106	75	108	92	—	7	Potatoes	Good English ...	,, ton
8½	7	10¼	8⅛	10¼	8	Rice.....	Rangoon (or Madras) [a] ...	,, cwt.
57½	52	53	38	48	9	Beef.....	Prime [b] ...	d. p. 8 lbs.
48	44	45½	32	42	10	,, ...	Middling [c] ...	,,
66½	56	58½	46	53½	11	Mutton	Prime [b] ...	,,
55	47	51½	40	48	12	,,	Middling [c] ...	,,
50	45	51	43	51	13	Pork ...	Large and small [b] ...	,,
73	68	69½	56	60	14	Bacon ...	Waterford ...	sh. p. cwt.
120	111	117	89	105	15	Butter...	Friesland fine ...	,,
18½	13½	23¼	21½	27	16A	Sugar ...	West Indian (British) refining [d] ...	sh. p. cwt.
19½	14¼	—	—	—	16B	,, ...	Beet (German or French) ...	,,
23¼	17⅜	29¼	24	—	17	,, ...	Java ...	,,
78	60	76	49	72½	18A	Coffee ...	Plantation (low middling) [e] ...	,,
50	39	58	39	49½	18B	,, ...	Brazil (good) ...	,,
7	6½	11¾	9¼	13½	19A	Tea	Congou common ...	d. p. lb.
13¼	12	17¼	13½	18½ [h]	19B	,, ...	Average import price ...	,,
47½	42	64	43	62 [i]	20	Iron.....	Scotch pig ...	sh. p. ton
5⅜	4⅞	8	6⅜	7¾	21	,, ...	Bars ...	£ ,,
59	43	87 [h]	80 [h]	85 [h]	22A	Copper	Chili bars ...	,,
64	47	96	87	94	22A	,,	English tough cake ...	,,
85	87	112	80	94	23	Tin	Straits ...	,,
14¼	11⅝	21½	17	19½	24	Lead ...	English pig ...	,,
17	16¼	20¾	17	21½	25	Coals ...	Wallsend Hetton in London ...	sh. ,,
9⅛	9	10¾	7⅝	10¼	26	,, ...	Average export price [f] ...	,,
6¼	5⅝	10 7/16	5 7/16	8½	27	Cotton...	Middling Uplands ...	d. p. lb.
4½	4¼	7 1/16	4 3/16	6¼	28	,, ...	Fair Surat (Dhollerah) ...	,,
33½	34½	49	42	46½	29	Flax.....	Russian ...	£ p. ton
36¼	25	38	37	34	30A	Hemp ...	Manilla fair roping ...	,,
26	29	36	31	34	30B	,, ...	St. Petersburg clean ...	,,
15¾	12	19½	15	18 [i]	31	Jute.....	Good medium ...	,,
19	16⅛	21¾	16½	20 [i]	32A	Wool ...	Merino, Pt. Phillip fleece ...	d. p. lb.
8¾	6⅜	10⅜	7¼	9¼ [i]	32B	,, ...	,, Adelaide grease ...	,,
12	9⅜	19½	11½	16	33	,, ...	Lincoln half hogs ...	,,
12⅞	10¼	17	10⅞	15		,, ...	Southdown, E. and W. ...	,,
15¼	12¾	22	16½	20	34	Silk	Tsatlee ...	sh. ,,
25	23	39	26	34		,, ...	Organsins ...	,,
8¾	8¾	9⅛	5⅛	8⅛	35A	Hides ...	River Plate dry ...	d. p. lb.
7	6½	—	—	—	35B	,, ...	,, salted ...	,,
15	15	15¼	9½	13⅜	36	Leather	Crop hides, 30—45 lbs. ...	,,
43	38	48½	40	45½	37A	Tallow...	St. Petersburg Y.C. ...	sh. p. cwt.
38	30½	49	41 [h]	46 [h]	37B	,, ...	Town ...	,,
35	30	40½	30½	36	38	Oil	Palm ...	£ p. ton
41	39	53	43	51½	39	,, ...	Olive ...	,, tun
24	22	33	28	31	40A	,, ...	Linseed ...	,, ton
47	44	60	44½	53	40B	Seeds ...	Linseeds ...	sh. p. qtr.
7⅛	6⅞	—	—	—	41	Petroleum	...	d. p. gall.
66	55	—	—	—	42	Soda ...	Crystals ...	sh. p. ton
127	117	182	174	—		Alkali ...	Export price ...	,,
13	10½	15	13⅓	16⅔	43	Nitrate of soda	...	,, cwt.
6¼	5¼	6¾	4⅛	5¾	44	Indigo...	Bengal, good consuming ...	,, lb.
49	48	66	62	65	45A	Timber	Hewn [g] ...	,, load
48	45	57	—	—	45B	,,	Sawn or split ...	,,

[f] Coals, export prices at Newcastle before 1846.
[g] Timber, Canadian yellow pine before 1854.
[h] Prices partly nominal.
[i] Average of forty years only.
[k] Average from 1873-77 only.

All animal products except wool and tallow have their highest points in the last two periods. The generally falling tendency is particularly noticeable in the case of sugar and tea, wheat, copper, tin, lead, tallow, and oils. With regard to textiles we observe the influence of the American war in the fourth, and of the fashion for coarse wools and silk in the fourth and fifth periods. In the case of corn we have low prices in the fourth period in conjunction with several very good harvests.

The prices of meat have on the whole remained very high, as the home production in the United Kingdom has not kept pace with the growth of population and the increasing requirements; the number of sheep decreased considerably owing to diseases, and the low prices of English wool. The following figures will illustrate this :—

Index Numbers of Prices of Animal Produce, 1867-77 = 100.

[Population, cattle, and sheep columns, in millions and two decimals.]

	Population.	Number of Cattle.	Number of Sheep.	Beef.	Mutton.	Butter.	Wool, Merino.	Wool, English.	Hides.	Tallow.
1873	32·12	10·15	33·98	111	113	98	118	124	120	97
'74	32·43	10·28	34·84	103	97	107	113	105	115	92
'78	33·80	9·76	32·57	101	104	98	93	76	94	84
'82	35·29	9·83	27·45	102	111	100	92	57	100	107
'83	35·61	10·10	28·35	103	113	98	89	51	100	103
'84	35·96	10·42	29·38	98	99	96	85	51	100	94
'85	36·33	10·87	30·09	88	87	89	73	50	95	76

Thanks to the increasing imports of fresh meat and live cattle, prices have materially declined of late, and the fall has extended to all animal products, partly from the above, partly from general causes. Hides kept up their level the longest, but they show now a distinct fall.

As we have found that the present price level is on the average lower than in 1849, it will be interesting to compare the 1885 prices with the average of the five low years 1848-52, in order to ascertain the radical change which has taken place in the various articles. The following is the result :—

	Very much Higher.	10—20 per Cent. Higher.	About the same.	10—20 per Cent. Lower.	Very much Lower.
	Beef	Barley	Iron	Maize	Wheat
	Mutton	Oats	Tin	Potatoes	Sugar
	Hides	Pork and Bacon	Coals	Rice	Copper
	Leather	Butter	Cotton	Tea	Lead
		Coffee	Hemp	Flax	Silk
		Indigo	Wool	Jute	Tallow
			Palm oil	Olive oil	Alkali
				Linseed oil	Nitrate
					Timber
Number of articles	4	6	7	8	9
Relative importance in the United Kingdom, 1883-85 { Mln.£	73	94	153	57	104
Relative importance in the United Kingdom, 1883-85 { Pr.cnt.	15	19	32	12	22

		Higher.	About the same.	Lower.
Animal products	Food	4	—	—
	Materials	2	1	1
Vegetable „	Food	3	—	6
	Materials	1	3	6
Mineral „	.....	—	3	4
Total number of articles		10	7	17

We observe that of animal products 6 are higher, 1 about the same, and 1 lower; while of vegetable and mineral products only 4 are higher, 6 unchanged, and 16 lower. This confirms the prediction of Cairnes, that owing to the gold discoveries "the rise "of prices would be greater in animal than in vegetable and mineral "products." The principal explanation of this phenomenon may, I believe, be found in the difficulty of transport of animal food, in the growth of population in Europe and North America, in the general extension of wealth and the consequent improved condition of the lower classes, and in the fact, that the production of vegetable and mineral articles may be extended all over the world, while domestic animals are practically confined to the more moderate climates. Leather shows the greatest rise; it is an article which can hardly be replaced; while wool and tallow had to sustain during this century the competition respectively of the enormous growth in the production of cotton and jute (also the extended use of old material—shoddy), and of all kinds of oil, gas, &c.

My researches have been confined to the prices of general commodities, almost entirely raw produce. Of articles not comprised in my statistics, wine is the only important one which has risen. I was unable to include the same as there are no reliable

price statistics obtainable. The average Board of Trade prices do not show a rise, but prices for French and other competing light wines are now decidedly higher than the average of 1867-77. There is a well known cause for this, the ravages of the phylloxera, which has so much reduced the production that France has to import now more wine than she exports. There are a few articles of less importance that have during the last few years been dearer than formerly, the most prominent among these being cocoa and pepper; they have not been included in the tables, as their import value is less than a million pounds; the general average according to the importance of the various articles would not have been affected by them in the slightest degree, and there are ever so many products which we might put against them, and which are very much cheaper, for instance, lard, spelter, saltpetre, quicksilver, turpentine, rapeseed oil and other oils, shellac, quinine and many chemicals.

Manufactures have also declined considerably, and as was recently shown in a Board of Trade return, the prices of our exports are now as low or lower than in 1848 and 1849, but manufactures are to a greater extent affected than raw produce by new inventions, and by the constant tendency to reduce their cost of production.

Houses and landed property are said to have fallen 20 to 30 per cent. during late years, and in some districts even a great deal more.

There is much difference of opinion whether wages have changed materially. They have been reduced in many branches, but are probably in all cases still higher than before 1870, and the reduction has certainly been in no proportion to the fall of prices. Though wages will always be influenced by depression in trade, they need not on the whole follow the same course as prices of commodities. Emigration takes away many of the best hands, while production increases at a quicker rate than population, and thus causes an increased demand for labour.

If we subject the period since 1873 to a more rigorous examination, we find a good many influences which have unfavourably affected general trade. During the first few years business suffered still from the consequences of the over speculation and the crisis of 1873. England had a series of unsatisfactory harvests, and large failures in 1875 and 1878, while in France one of the most important industries, the production of wine, was seriously injured by the phylloxera. Capitalists lost heavily through the bankruptcy of a number of States, like Turkey and several republics in Central and South America. Then we had the

French crisis in 1882, principally on the Bourse, but affecting the whole trade of the country, and in 1884 the railway crisis in America, causing extensive losses to share and bondholders.

But unfavourable as were the influences of these events, particularly of the last two on the trade of the past four years, we must not attach to them too great an importance. The crisis of 1873 can only have affected the first few years, as a great development of industry is observable in Germany and Austria since 1878, and all traces of the crisis in America must have disappeared at the time of the "boom" in 1879. The harvest, though at all times a great factor in the prosperity of the country, has no longer the same importance as formerly, owing to the large increase in the production of extra-European countries, and to the rapid and cheap mode of conveyance. Besides during the last five years the European harvests have been better again, and partly even very good, which may have caused additional pressure on the prices of corn, but should, according to the usual theory, have had a favourable influence on the general state of trade.

We have already seen that changes have taken place in the production of gold, and in the currencies of some countries, which I believe must have had a direct influence upon prices, and we have now to inquire into the additional influence of the increase of production.

III.—*The Production of Commodities.*

It cannot be doubted that the increase in production has of late been very important. It was occasioned by the following three causes:—

1. The high prices in the years 1872-74, and then again during the American "boom," from 1879 to 1880.
2. The diminution of the cost of production and conveyance.
3. The opening of new sources of supply.

The highly remunerative prices had greatly stimulated production, and when prices declined, producers in many branches of trade were obliged to further increase their production in order to balance to some extent at least the shrinkage of values.

The diminution in the cost of production and conveyance had its greatest effect in the extra-European countries. As we had an European era of the development of steam and of railways, so we have now an extra-European era of railways. Not only are existing settlements connected, but the railroads are taken through uncultivated and scarcely explored districts, and the latter are opened for new settlements. The producer can not only convey his products cheaper and quicker to port and to other countries, but he can also obtain his requirements at less cost and more rapidly. The distance

appears reduced owing to the better communications, and the increasing civilisation in the new countries attracts an increasing number of immigrants. Land is abundant, and the other two factors of production, labour and capital, are more easily acquired. A great stimulus was given in this respect some thirty-five years ago by the gold discoveries in California and Australia.

Steamers supersede more and more sailing vessels, their number has increased enormously, and as they travel three times as quick, their tonnage counts thrice that of the sailers. The opening of the Suez Canal has had an additional influence in accelerating the conveyance of goods.

Another influence upon commerce generally we have to ascribe to the telegraph, particularly to the submarine cables. They have drawn producer and consumer closer together, the middleman is more and more avoided, and the rates of commission are reduced, partly in consequence of the great development of colonial and foreign banking. As products can be quickly exchanged between various countries, we are less dependent upon stocks, and the market cannot so easily be manipulated by speculators. We are also less dependent upon the harvest of a certain district, as thanks to the quick communications, a deficit in one country can be easily covered by an excess in another. If heavy stocks still exist, it is owing to the great production, and the unprofitable state of business, not to any necessity for them; they consequently weigh upon the market with additional force, and cause a greater depression than similar quantities would have occasioned in former periods.

Last, but not least, we have to mention the inventions of the last fifteen years, and need only call attention to the improvements in the smelting of ore, in the production of steel and in the sugar industry, to the development of the chemical industry, and to the improvement of machinery in all branches.

All these causes have had an influence in reducing the cost of production.

It has also been argued that wages have not risen in the silver using countries in accordance with the fall in the value of silver, and that the cost of production has thus been lessened. This may be true to some extent, but probably by far too much stress is laid on this point. Most commodities, especially wheat and eastern produce, have fallen more than silver, and if it pays well to produce them now, it ought to have paid still better when prices were high.

With regard to the opening or greater development of *new sources* of supply, we find the same most conspicuous, if we confine ourselves to the large articles of consumption—in the case of wheat, sugar, and copper. In *wheat* we observe the enormous

increase in the United States, where the figures of 1872 have been doubled—from 250 million bushels in 1872 to 513 millions in 1884, (but only 357 millions in 1885); then in Australasia—from 18 million bushels in 1873 to 37 millions in 1884; and as a new and very important source, India, from 400,000 cwts. exported in 1873 to an export of 17 million cwts. on the average of 1883-85. In *sugar* the production of beetroot has been more than doubled within eleven years—from 1,142,000 tons in the season 1872-73 to 2,545,000 tons in the season 1884-85, but with a falling off for 1885-86. In *copper* we have the enormous increase in Spain and of late in the United States. The export of *tea* from India is almost four times as large, viz., 68 million lbs. in 1885 against 18 millions in 1873, and in the production of *petroleum*, Russia is a new competitor.

As a "new source of supply" of the very greatest importance, particularly for England, we have to consider the importation of live animals and of fresh meat from extra-European countries. Only a few years have elapsed since this import has been taken up, and it is already a complete success. The following figures show the value of the imports into the United Kingdom from America and Australia:—

	From North America.		From Australia and River Plate.	Total.
	Live Animals.	Fresh Meat.	Fresh Meat.	
	£	£	£	£
1876	217,000	390,000	—	607,000
'79	4,388,000	168,000	—	4,556,000
'82	2,087,000	1,242,000	178,000	3,507,000
'83	5,111,000	2,273,000	305,000	7,689,000
'84	4,829,000	2,366,000	950,000	8,145,000
'85	4,596,000	2,364,000	1,170,000	8,130,000

This import is a great boon, and it is to be hoped that the importation of fresh meat will experience a great increase. Meat is of little value in Australia and the River Plate, where the population is still thin, while an enormous number of sheep and cattle is kept; the increased value of the same must therefore reduce the cost of production of hides, tallow, wool and skins. It will be remembered that animal products had kept up a comparatively higher price level than other products, and that prices have given way now in all directions. The cause of the fall cannot in all cases be ascribed to the above influence, but as the difficulty of importing fresh meat and live cattle has been removed, this general decline may teach us that we must not expect for animal products a return to a much more favoured position.

Extent of the Increase of Production.

It is difficult to measure the real extent of the increase, as we have only of a few articles reliable estimates as to the total production, or of the total quantity available for consumption in Europe and North America. The great increase in some districts, particularly if it weighs upon the international markets, makes us overlook sometimes that there may be a decrease or no progress in other districts.

The following are estimates of the production of the principal commodities as compared with 1873, so far as I have been able to collect the same :—

Corn.

In the subjoined figures an attempt is made to give comparative statistics of the production of corn in the years 1872-74 and 1882-84. Several of the figures can only be taken as approximate, as the statistical data are in some respects rather incomplete. In the first period the figures for Russia are for the year 1872 only, the figures for Germany, Spain, and Portugal are taken from a table published by Mr. Neumann-Spallart, and in the absence of new returns in reference to Spain and Portugal, it has been assumed that the production of these countries has remained unchanged. The figures for the Continent are exclusive of the Balkan Peninsula :—

[In million bushels.]

	1872-74.					
	Wheat and Spelt.	Rye.	Barley.	Oats.	Maize and Others.	Total.
Russia	158	547	125	544	144	1,518
Sweden and Norway	3	16	16	40	8	83
Denmark	4	13	22	29	5	73
Germany	135	258	83	239	4	719
Austria	40	75	48	77	31	271
Hungary	52	30	32	40	57	211
Holland	6	8	5	12	6	37
Belgium	21	17	3	23	4	68
France	313	72	55	202	96	738
Italy	142	—	18	19	100	279
Spain	146	19	74	25	24	288
Portugal	8	6	2	—	16	32
Continent	1,028	1,061	483	1,250	495	4,317
United Kingdom	100	—	80	156	20	356
„ States	280	15	32	260	966	1,553
Australasia	20	—	2	7	5	34
Canada (exports)	5	—	5	1	5	16
India „	2	—	—	—	—	2
Total	1,435	1,076	602	1,674	1,491	6,278

[In million bushels.]

	1882-84.					
	Wheat and Spelt.	Rye.	Barley.	Oats.	Maize and Others.	Total.
Russia	235	592	127	513	166	1,633
Sweden and Norway	3	20	20	64	11	118
Denmark	4	16	21	30	9	80
Germany	104	214	97	235	6	656
Austria	40	70	47	93	36	286
Hungary	106	43	46	57	101	353
Holland	6	10	5	12	6	39
Belgium	21	16	3	24	4	68
France	312	74	55	248	85	774
Italy	130	—	14	15	84	243
Spain	146	19	74	25	24	288
Portugal	8	6	2	—	16	32
Continent	1,115	1,080	511	1,316	548	4,570
United Kingdom	80	—	83	167	16	346
„ States	479	29	53	548	1,665	2,774
Australasia	38	—	3	17	5	63
Canada (exports)	7	—	10	2	5	24
India „	31	—	—	—	—	31
Total	1,750	1,109	660	2,050	2,239	7,808
Increase per cent. over 1872-74	22	3	10	23	50	24
	13			36		

The real increase in the case of wheat is probably less marked, as the Russian crop of 158 million bushels in 1872, was an unusually small one. The total wheat crop of 1884 was larger than the average given above, but that of 1885 was considerably smaller, as the United States production fell from 513 million bushels in 1884, to only 357 in 1885. The aggregate increase in wheat, rye, and barley is only 13 per cent., while oats and maize, etc., which are principally food for animals, have increased by 36 per cent. It is worth noticing, however, that of the enormous production of maize and oats in the United States, only a very small proportion is exported, and that the total supply in Europe has not increased by more than 8 per cent. Last year's production in the United States was still larger, viz., 1,936 million bushels, against 1,795 in 1884, and 1,551 in 1883.

Rice.

	1874.	1879.	1883.	1884.	1885.
	Tons.	Tons.	Tons.	Tons.	Tons.
Total shipments from the East	594,000	768,000	923,000	871,000	798,000
			Average 864,000. Increase 46 per cnt.		

Meat.

Production of the United Kingdom and imports only. The production also includes the imported live stock slaughtered. The percentage slaughtered has been taken thus: Cattle 25 per cent., sheep 40 per cent., and pigs 100 per cent., to which the live animals imported were added; and the average weight of meat per head has been taken as follows: Cattle at 600 lbs., sheep at 60 lbs., pigs at 134 lbs.

[Million cwts. and decimals.]

	1872-74.	1885.	
Beef production	14·47	16·31	
„ imports	0·62	1·70	
Mutton production	7·66	6·85	
„ imports	—	0·57	
Pork production	4·49	4·43	
„ imports	2·79	4·43	
Total	30·03	34·29	Increase 14 per cent.

Sugar.

[In thousands of tons.]

	Season.			
	1872-73.	1878-79.	1884-85.	Estimates. 1885-86.
Cane—				
Java	200	206	380	330
Cuba	478	685	630	620
Mauritius	147	135	128	105
Réunion	32*	33	37	37
Brazils	158	123	220	180
Manilla	89	134	175	210
Louisiana	64*	112	94	110
Porto Rico	72	76	60	45
Total (above countries only)	1,240	1,504	1,724	1,637
Beet—				
Germany	259	421	1,155	825
France	408	432	308	290
Austro-Hungary	214	406	558	342
Russia and Poland	150	215	386	525
Belgium	76	70	88	55
Holland, &c.	35	30	50	38
Total	1,142	1,574	2,545	2,075
Grand total (above countries only)	2,382	3,078	4,269	3,712
			Average 3,990. Increase 68 per cent.	

* Production in 1875.

Prices of sugar in 1885 were already influenced by the expectation of a decrease in the crops.

Coffee.

	1872-73.	1878-79.	1884-85.	
Brazil ..... tons	204,000	281,000	364,000	
Ceylon ..... „	50,000	41,000	16,000	
Java ..... „	55,000	94,000	91,000	
Total (above crops) „	309,000	416,000	471,000	Inc. 52 p.ct.
	1873.	1879.	1885.	say 52 per cent.
Total imports into Europe and United States ..... tons	450,000 about	597,000	680,000	„ 51 „

Tea.

	1873.	1879.	1885.	
China exports mln. lbs.	216	264	269	(1884)
India „ „	18	35	68	
Total	234	299	337	Increase 44 per cent.

Pig Iron.

[In thousands of tons.]

	1873.	1879.	1883.	1884.	1885.
United Kingdom	6,566	5,995	8,529	7,812	7,415
„ States	2,868	3,071	5,147	4,585	4,530
Germany	2,241	2,227	3,470	3,583	3,752
France	1,367	1,400	2,067	1,855	1,629
	13,042	12,693	19,213	17,835	17,326
			Average 18,125. Increase 39 p. cnt.		
Production of the world, according to Sir L. Bell, up to 1884	14,689	14,048	21,063	20,281	say 19,800
			Average 20,380. Increase 39 p. cnt.		

Coals.

[Million tons.]

	1873.	1879.	1884.	1885.
United Kingdom	127	134	160	
Germany (including peat)	46	53	72	Probably not materially larger
Austria („)	10	13	17	
France	18	17	20	
Belgium	16	16	18	
United States	51	59	107	
	268	292	394	Incr. 47 per cnt.

Copper.

	1873.	1879.	1884.	1885.	
	Tons.	Tons.	Tons.	Tons.	
United Kingdom	5,200	3,500	3,400	2,800	
Germany	6,500	9,000	14,800	15,200	
Spain and Portugal	14,000*	32,700	44,700	46,000	
Chili	46,000	49,300	41,600	38,500	
United States	13,800	23,400	64,700	74,000	
Australia	11,000	9,500	14,100	11,400	
Sundries	16,000*	23,800	34,200	33,600	
	112,500	151,200	217,500	221,500	Inc. 97 per cent.

* Approximate figures.

Cotton.

Supply in Europe and North America according to Ellison and Co.:—

[In thousands of bales.]

	Season.					
	1872-73.	1878-79.	1882-83.	1883-84.	1884-85.	Estimates. 1885-86.
United States	3,930	5,073	6,992	5,714	5,669	6,500
East India	1,302	974	1,638	1,687	1,023	1,350
Brazil	616	108	342	343	252	750
Mediterranean	484	294	361	451	575	
West Indian, &c.	192	87	76	72	75	
Total	6,524	6,536	9,409	8,267	7,594	8,600 Increase 32 per cent.
			Average 8,423.			

The average supply in the three seasons 1848-49—1850-51 was 3,073,000 bales, and in the three seasons 1858-59—1860-61 = 5,162,000 bales.

Wool (*my own Estimates*).

[In million of lbs.]

	1873.	1879.	1885.	
United Kingdom, production	165	153	136	
Continent ,,	470	450	450	
United States ,,	175	233	330	
Australasia ,,	193	289	385	
Cape of Good Hope ,,	49	51	50	
River Plate ,,	248	226	356	
Other sources (so far as received into Europe and North America)	125	120	123	
Total	1,425	1,522	1,830	
Estimated *clean* wool after washing...	827	861	993	Incr. 20 p. cnt.

The supply for 1886 will not be materially larger than that for 1885.

Silk.

In million lbs. and decimals.]

	1872.	1873.	1883.	1884.	1885.
Production, Europe and Levant	9·4	8·1	10·9	9·4	8·4
Exports, China, Japan, and East India	10·3	9·5	11·3	11·2	11·3
	19·7	17·6	22·2	20·6	19·7
	18·6		20·8		
			Increase 12 per cent.		

Jute.

[In million lbs.]

	1872-74. Average.	1879-80. Average.	1885.
Indian exports	722	711	937 Inc. 30 per cent.

In the foregoing estimates the largest figures have as a rule been taken for calculating the increase. Where there has been a falling off during the last few years, the highest figures have been averaged with the later figures. The whole gives if anything an exaggerated picture of the increase. Petroleum has not been included in the above table, as it is a comparatively new article, but the production of the United States has rapidly expanded, from 7,878,000 barrels in 1873, to over 21 million barrels in 1885. The imports into the United Kingdom have risen from 6 million gallons in 1872 and 16½ millions in 1873, to 74 millions in 1885.

In the following table I have calculated the average total increase of all articles according to their importance in the United Kingdom. The first column gives the nominal value of the average quantities in 1872-74, based upon the average prices of 1867-77 (an explanation of these figures will be found in a later part of this chapter), the second column gives the increase in the total production, as illustrated by the above statistics, and the third the nominal value with the increase of production added. The sundry other articles of which more extensive statistics are not available, have been taken according to their movements in the United Kingdom. The total shows the aggregate increase of production of all articles:—

	Nominal Value Million £ and decimals.	Increase in Production.	Altered Nominal Value.
	£	Per cnt.	£
Wheat and flour	64·3	22	78·4
Barley	24·3	10	26·7
Oats	30·2	23	37·1
Rice	3·7	46	5·4
Meat	78·2	14*	89·1
Sugar	20·0	68	33·6
Coffee	6·0	52	9·1
Tea	12·2	44	17·6
Iron	22·2	39	30·9
Copper	5·1	97	10·0
Coals	57·5	47	84·5
Cotton	53·2	32	70·2
Jute	3·7	30	4·8
Wool	32·1	20	38·5
Silk	6·7	12	7·5
	419·4	30	543·4
Other articles	106·0	19*	126·3
Total	525·4	28	669·7

* Movements in the United Kingdom only.

The more important articles show an average increase of 30 per cent., the other articles according to their supply in the United Kingdom only an increase of 19 per cent., making a total increase in production of 28 per cent.

Were we to calculate the increase according to the proportion of each article in the commerce of Europe and North America (instead of that in the United Kingdom only), the figure would no doubt appear smaller, as corn and meat, which form a by far greater proportion than all other articles together, have experienced a much smaller increase than sugar, coffee, tea and materials. I am therefore satisfied that the figure of 28 per cent. rather over states than under states the total average increase which has taken place.

The preceding calculations show a total aggregate increase in production from 1873-85 of 28 per cent., or $2\frac{1}{3}$ per cent. per annum. If we now refer to the production of the precious metals, we obtain the following comparison :—

	Average. 1871-75.	1884.	
Silver ..... Kilos.	1,969,000	2,860,000	Incr. 45 per cnt.
Gold ..... ,,	170,675	144,000	Decr. 15 ,,

The increase in the production of silver was therefore still more important than that of other commodities taken in the aggregate, while the demand has seriously fallen off. On the other hand the production of gold is 15 per cent. less, with a greatly increased demand.

The population of Europe (excluding Turkey) and North America has increased 14 per cent. (from 337 millions in 1873 to 386 millions in 1885). The increase in production is therefore twice as large, or deducting the increase in population we have a net increase in the production of commodities of 14 per cent., against which we have stated a fall in prices up to 1885 of 28 per cent., as compared with the average of the eleven years 1867-77, or of even 35 per cent. as compared with 1873. I merely put the figures in juxtaposition to show that the decline is much larger than the increase in production, but I do not mean to convey that the two factors should have been alike, as in case of a great increase in production, prices may fall at a much greater ratio, or may even rise according to the other conditions influencing prices.

If we subject the figures to a closer examination, we find the increase in the case of meat to be insufficient, and in the case of corn and textiles not extreme. The real important difference is in the case of sugar, coffee, tea, and minerals.

We must, however, not forget that the consumption of many articles has greatly increased. In consequence of the enormous growth of wealth and of the rise of wages during the prosperous years, the requirements and the comfort of all classes, but particularly of the lower classes, have become much greater. Commerce has expanded continuously, not only in Europe and North America, but all over the world, and if the colonies and other extra-European countries send us increasing quantities of food and raw materials, they have to take more of our products, manufactures, &c. If there is a great increase in the production of iron and coal, we must also look at the great development of industry requiring such enormous quantities of both materials. Further, the large extension of railways, the mileage of the world having risen from 168,000 in 1873 to 214,000 in 1879, and 290,000 in 1884, equal to 73 per cent. (In Germany the railway material, locomotives and waggons, have been doubled since the war.) The addition to the telegraph lines is similar or still larger. Shipbuilding, particularly of steamers, has been enormous, as will be seen from the following figures :—

Steamer Tonnage.	1873.	1879.	1884.
United Kingdom.	1,713,783	2,511,233	3,944,273
France.....	185,165	255,959	511,072
Germany.....	167,633	196,343	413,943
Total, three countries..	2,066,581	2,963,535	4,869,288

This indicates an addition of not less than 135 per cent. We have further the great military and naval requirements, monster guns and iron turrets on fortresses, torpedo boats and huge ironclads. If we look at these extraordinary requirements, we cannot be surprised at the great increase in the production of iron and coal.

In the case of many commodities there is now a decided falling off in the demand, partly in consequence of previous over production, and partly owing to the depression in trade and the decline of prosperity; and the decrease in consumption affects prices to a greater extent than the large production.

Though the increase has no doubt been very large, and though it cannot be denied that there is over production now in various directions, partly caused by excessive supplies from new sources, and partly by the falling off of a hitherto existing demand, it must be remembered that we had very similar phenomena in previous epochs, and that the cry of over production has been heard ever so often, without causing such a heavy fall as we are now witnessing.

It is impossible to give estimates of the total production in former periods in a similar way as I have given them for the time from 1873-85, as the statistical data are too scarce and unreliable. I have, however, worked out a table showing the movements of all the articles included in my price lists in the United Kingdom, and it may be fairly asserted that this will give an approximate idea of the advance in the production of the whole world. The table itself will be found interesting and useful in many respects.

The periods selected for comparison are the following, taking always the average of three years, viz., 1848-50, 1859-61, 1872-74, and 1883-85. Between the first and second and between the third and fourth there is an interval of eleven years, but between the second and third one of thirteen years. This could not be avoided, as the imports of the years 1862-63 were too much affected by the American civil war, and could not fairly be used for a comparison.

In the subjoined table the quantities are given in each period, and also the estimated actual values, and in addition nominal

values have been calculated *uniformly* at the average prices in the eleven years 1867-77. These latter calculations, being on the same basis of prices for all the four periods, and treating each article according to its real importance show in the aggregate the actual *increase* in *quantities* of all the commodities combined. On the other hand, a comparison of these nominal values with the estimated real values, will show how much on the average of each period prices ruled above or below the average level of the eleven years 1867-77, which have served as the standard of comparison in all our inquiries.

An examination of the table shows the startling increase in sugar, tea and minerals, which are now four times as important as thirty-five years ago, and the very large increase of materials generally. The total result is the following:—

		1848-50.	1859-61.	1872-74.	1883-85.
Actual values	Food, mln. £ and dec.....	151·6	205·7	300·2	273·3
	Materials „	68·2	144·4	277·3	209·3
	Total „	219·8	350·1	577·5	482·6
			Per cnt.	Per cnt.	Per cnt.
	Increase over 1848-50....	—	+ 59	+ 163	+ 119
	Increase (+) or decrease (−) over preceding period	—	+ 59	+ 65	− 16
Nominal values on average prices of 1867-77, showing increase in quantities.	Food, mln. £ and dec....	197·5	221·4	290·2	337·4
	Materials „	97·3	161·3	235·2	280·0
	Total „	294·8	382·7	525·4	617·4
			Per cnt.	Per cnt.	Per cnt.
	Increase over 1848-50....	—	+ 30	+ 78	+ 109
	Increase over preceding period	—	+ 30	+ 37	+ 17½
Range of prices—					
Average of 1867-77 = 100		—	—	—	—
According to above tables		74	91½	110	78
According to my index numbers deduced from the price tables		77	97	107	77

The prices in the table of production and imports being mostly based on Board of Trade returns, differ somewhat from my own collections, the variations allowing for quantities (calculating each article according to its importance), are even more striking as already shown in the chapter on prices. The average of 1883-85 does of course not show the full decline.

It will be observed that the total trade of the United Kingdom

has during the last thirty-five years more than doubled, the increase according to actual values being 119 per cent., and according to quantities 109 per cent.; and it is also interesting to notice on a comparison of the last period, that whilst the quantity of commodities has increased by 17½ per cent., the actual value of the total owing to a decline of prices of 29 per cent. (from 110 to 78) is 16 per cent. less. Compared even with the average prices of the eleven years 1867-77, the now greater quantity shows a diminution in value of 8 per cent. (482 million £ against 525 million £).

The total addition in quantities of 109 per cent. is reduced to 61 per cent. if the increase of population is taken into consideration :—

	Average Population of United Kingdom. Mlns. and decimals.	Nominal Value,* showing the Increase of Quantities.		Increase on 1848-50, allowing for Increase of Population.
		Mln. £ and decimals.	Per Head, £ and decimals.	
1848–50.....	27·67	294·8	10·65	—
'59–61.....	28·78	382·7	13·30	25 per cent.
'72–74.....	32·13	525·4	16·35	53 „
'83–85.....	35·97	617·4	17·16	61 „

* It must be clearly understood that the figures show the total trade in the commodities treated in the tables including re-exports and *not* the actual consumption.

The proportionate *increase* in the *total quantities* (independent of population) from one period to the other was from—

1848-50 to 1859-61 = 30 per cent., or 2·7 per cent. per year	}	Average 2¾ per cent.
'59-61 „ '72-74 = 37 „ 2·8 „		
'72-74 „ '83-85 = 17½ „ 1·6 „		

The increase in the United Kingdom during the last period is only 17½ per cent. as against 28 per cent. found to be the total increase in production in Europe and North America, and the difference is due to the fact that 28 per cent. gives if anything an exaggerated estimate of the actual growth of production, and that the part taken therein by other countries was probably larger than that taken by the United Kingdom, partly owing to the increase in direct shipments, but principally in consequence of the enormous development of trade in the United States.

The increase, however, from 1849-60, and that from 1860-73 was even larger than the world's increase in production during the last twelve years.

With regard to the last period it is worth noticing that in some articles the increase falls entirely, in others mostly on the last six years, an effect of the "American boom." In a few cases, such as sugar, wheat and copper, the expansion has indeed been a very

rapid one (in wheat especially the quick increase in the States, India, &c., simultaneously with more favourable harvests in Europe), but the average result of such a large number of commodities (45) as chosen for my price tables, has only partly been affected by this cause.

Special Remarks on the Table of Production and Imports.

The table gives the production and the total imports, including re-exports, and not the actual consumption.

Figures marked thus * are more or less rough estimates. They have been inserted in order to give to the relative articles their due importance, and though in themselves they cannot pretend to any statistical value, the aggregate of all figures will I believe give a very trustworthy picture of the commercial progress in this country.

There were no complete agricultural returns published before 1866, and many of the estimates made before that time, particularly of the numbers of live stock, were quite unreliable. My estimates for 1848-50 and 1859-61, of the production of *Corn* and *Meat*, have been calculated on the basis of the following figures, which are at least in part founded on authority:—

	1848-50.		1859-61.	
Wheat....	acres 3,750,000	at 28 bushels	acres 4,000,000	at 24 bushels
Barley....	„ 2,000,000	„ 35 „	„ 2,300,000	„ 35 „
Oats	„ 5,000,000	„ 39 „	„ 4,500,000	„ 39 „
Cattle	No. 7,000,000	nominal	No. 8,000,000	nominal
Sheep	„ 26,000,000	„	„ 30,000,000	„
Pigs.....	„ 3,000,000	„	„ 3,500,000	„

The figures of the production of potatoes in the two first periods, and of butter in all the four periods, are quite nominal.

Meat. Estimated that 25 per cent. of cattle, 40 per cent. of sheep, and 100 per cent. of pigs are annually slaughtered. The production is taken at 600 lbs. per head of cattle, 60 lbs. per sheep, and 134 lbs. per pig; the meat produced of live animals imported is included in the home production.

Iron. The production includes pig iron made from imported ore. Bar and manufactured iron imported is not included.

Sundry Materials are rather incomplete, as there are no sufficient data for calculating the home production of hides, tallow, soda and timber.

Values. Production of wheat, barley and oats, calculated at average "Gazette" prices, of meat and butter 20 per cent., of English wool 10 per cent., and of potatoes 30 per cent. *below* my quotations in the price tables, of coals 25 per cent. below the export prices. Iron at average prices of pig, and all other articles and imports at average Board of Trade prices.

United Kingdom. Production and

			Quantities. Millions and Decimals.			
			Average, 1848-50.	Average, 1859-61.	Average, 1872-74.	Average, 1883-85.
Wheat	Production	cwts.	59	54	56·2	43·5
,,	Imports	,,	14·7	24·3	42·5	57·5
Flour	,,	,,	3	4·8	5·6	15·7
Barley	Production	,,	35 *	38 *	40	42·1
,,	Imports	,,	4·1	6·2	11·9	15
Oats	Production	,,	70 *	62·5 *	55·7	58·6
,,	Imports	,,	3·1	5·3	11·6	13·7
Maize	,,	,,	7·3	8·9	20·3	29·3
Potatoes	Production	,,	110 *	110 *	120	133
,,	Imports	,,	1·2	0·5	5·8	3·3
Rice	,,	,,	0·92	2·09	6·87	6·64
Corn, &c.	Total		—	—	—	—
Beef	Production	cwts.	9·40 *	11·20 *	14·47	16·02
,,	Imports	,,	0·14	0·20	0·62	1·66
Mutton	Production	,,	5·60 *	6·60 *	7·66	6·77
,,	Imports	,,	—	—	—	0·44
Pork	Production	,,	3·60 *	4·20 *	4·49	4·65
,,	Imports (including bacon and hams)	,,	0·60	0·47	2·79	4·08
Butter	Production	,,	1·40 *	1·60 *	2 *	2 *
,,	Imports	,,	0·30	0·75	1·35	2·40
Meat and butter.	Total		—	—	—	—
Sugar	Imports, refined	cwts.	0·30	0·29	2·24	4·30
,,	,, raw	,,	6·70	9·44	14·05	19·80
Coffee	,,	,,	0·51	0·69	1·51	1·19
Tea	,,	lbs.	50·6	87	170	216
Sugar, &c.	Total		—	—	—	—
Iron	Production	tons	2·25	3·75	6·43	7·75
Copper	,,	cwts.	0·42 †	0·31	0·11	0·06
,,	Imports	,,	0·25	0·73	1·27	1·92
Tin	Production	,,	0·12 †	0·14	0·20	0·18
,,	Imports	,,	0·03	0·06	0·17	0·52
Lead	Production	,,	1·30 †	1·28	1·16	0·80
,,	Imports	,,	0·15	0·46	1·30	2·12
Coals	Production	tons	35	78	125	161
Minerals.	Total		—	—	—	—

* Estimates. See special remarks.

Imports of certain Commodities.

Estimated Actual Value in each Period. Million £ and Decimals.				Average Price, 1867-77.	Estimated Nominal Value in each Period, based upon the Uniform Average Prices of 1867-77. Million £ and Decimals.			
Average, 1848-50.	Average, 1859-61.	Average, 1872-74.	Average, 1883-85.	Price and Decimal.	Average, 1848-50.	Average, 1859-61.	Average, 1872-74.	Average, 1883-85.
29·5	30·5	35·7	17·7	sh. 12·1 cwt.	35·7	32·7	34	26·3
7·3	14·8	26·6	25·1	,, 12 ,,	8·8	14·6	25·5	34·5
2·5	3·9	5·2	10·7	,, 17·2 ,,	2·6	4·1	4·8	13·5
12·3	16·7	20·4	16·1	,, 9·7 ,,	17	18·4	19·4	20·4
1·4	2·6	5·2	4·8	,, 8·3 ,,	1·7	2·6	4·9	6·2
22·2	25·9	25·1	21·2	,, 9·1 ,,	31·8	28·4	25·3	26·7
1	2·1	4·7	4·5	,, 8·4 ,,	1·3	2·2	4·9	5·7
2·5	3·3	7·6	8·7	,, 7·5 ,,	2·7	3·3	7·6	11
19·2	20·3	28·5	19·9	,, 4·1 ,,	22·6	22·6	24·6	27·3
0·2	0·1	1·6	1	,, 5·4 ,,	0·3	0·1	1·6	0·9
0·3	1·3	3·5	2·7	,, 10·7 ,,	0·5	1·1	3·7	3·5
98·4	121·5	164·1	132·4		125	130·1	156·3	176
15·5	23·7	38·8	39·2	sh. 51 cwt.	24	28·6	36·9	40·8
0·2	0·4	1·5	4·5	,, 56 ,,	0·4	0·6	1·7	4·6
11·5	16·5	22·4	18·6	,, 55 ,,	15·4	18·1	21·1	18·6
—	—	—	1·2	,, 55 ,,	—	—	—	1·3
7·6	10·1	11	10·2	,, 48 ,,	8·6	10·1	10·8	11·2
1·3	1·2	6	9·8	,, 55 ,,	1·6	1·3	7·7	11·2
5	7·3	10	9·5	,, 100 ,,	7	8	10	10
1·1	3·7	7·3	11·9	,, 111 ,,	1·6	4·2	7·5	13·3
42·2	62·9	97	104·9		58·6	70·9	95·7	111
0·4	0·5	3·7	4·6	sh. 32·6 cwt.	0·5	0·5	3·6	7
6·7	11·9	17	16·4	,, 23·4 ,,	7·8	11	16·4	23·2
1·1	2·4	6·5	4	,, 79 ,,	2	2·7	6	4·7
2·8	6·5	11·9	11	d. 17·2 lb.	3·6	6·2	12·2	15·5
11	21·3	39·1	36		13·9	20·4	38·2	50·4
4·8	9·7	32·8	17	sh. 69 ton	7·8	12·9	22·2	26·7
1·8	1·5	0·5	0·2	£ 74 ,,	1·6	1·1	0·4	0·2
1·1	3·3	5·5	5·2	,, 74 ,,	0·9	2·7	4·7	7·1
0·5	0·9	1·3	0·8	,, 106 ,,	0·6	0·7	1·1	1
0·1	0·4	1	2·3	,, 106 ,,	0·2	0·3	0·9	2·7
1·1	1·4	1·3	0·5	,, 20·8 ,,	1·3	1·3	1·2	0·8
0·1	0·5	1·5	1·2	,, 20·8 ,,	0·2	0·5	1·3	2·2
10	26·8	84	56	sh. 9·2 ,,	16·1	35·9	57·5	74·1
19·5	44·5	127·9	83·2		28·7	55·4	89·3	114·8

† Copper, tin, and lead, figures for 1855.

United Kingdom. Production and

			Quantities. Millions and Decimals.			
			Average, 1848-50.	Average, 1859-61.	Average, 1872-74.	Average, 1883-85.
Cotton	Imports	lbs.	711	1291	1501	1622
Flax	Production	,,	50 *	50	52	42
,,	Imports	,,	190	133	211	149
Flax and hemp	Tow and Codilla	,,	—	26	41	41
Hemp	Imports	,,	81	100	134	154
Jute	,,	,,	30 †	104	483	681
Wool	Production	,,	130	140	163	132
,,	Imports (including goat's hair)	,,	76	146	329	524
Silk, raw	Imports	,,	5·52	9·27	6·22	3·54
Textiles.	Total		—	—	—	—
Hides	Imports only	lbs.	70	100	151	136
Leather	,, ,,	,,	with	hides	37·3	77·3
Tallow	,, ,,	cwts.	1·40	1·28	1·34	1·05
Oil, palm	,,	,,	0·48	0·74	1·03	0·82
,, olive	,,	tuns	0·016	0·019	0·027	0·024
,, seed	,, only	,,	0·004	0·011	0·018	0·012
Seeds, Linseed	,, ,,	qrs.	0·68	1·25	1·58	2·07
Petroleum	,,	gall.	—	0·17	14·84	65·62
Soda, alkali	Exports only	cwts.	0·68	1·83	4·74	6·72
Nitrate	Imports	,,	0·24	0·59	2·04	2·11
Indigo	,,	lbs.	7·87	8·34	9·72	11·16
Timber, hewn	,, only	loads	0·87	1·30	2·11	2·01
,, sawn	,, ,,	,,	0·82	1·75	3·46	4·20
Sundry Materials.	Total		—	—	—	—
Grand total			—	—	—	—

* Estimates. See special remarks.

IV.—*Recapitulation of the Causes of the Fall.*

Independent of the reasons which brought the unusually high prices of 1872-73 to a more moderate level, the causes of the present decline may be described as follows:—

1. Reduction of the cost of production and conveyance of some large articles of consumption by the opening of the Suez Canal, by the increase of steamers, and by the enormous extension of railways and telegraph lines, especially in extra-European countries. The opening of new sources of supply. In consequence of these causes, great increase in production.

Imports of certain Commodities—Contd.

Estimated Actual Value in each Period. Million £ and Decimals.				Average Price, 1867-77.	Estimated Nominal Value in each Period, based upon the Uniform Average Prices of 1867-77. Million £ and Decimals.			
Average, 1848-50.	Average, 1859-61.	Average, 1872-74.	Average, 1883-85.	Price and Decimal.	Average, 1848-50.	Average, 1859-61.	Average, 1872-74.	Average, 1883-85.
15·6	36·3	52·9	41·5	d. 8·5 lb.	25·2	45·7	53·2	57·4
0·9	1·2	1·1	0·7	£ 52·8 ton	1·2	1·2	1·2	1
3·4	3·2	4·7	2·7	„ 52·8 „	4·5	3·1	5	3·5
—	0·5	0·6	0·4	„ 36·8 „	—	0·4	0·7	0·7
1·2	1·3	2·2	2·2	„ 36·3 „	1·2	1·6	2·2	2·5
0·2	0·7	3·7	3·8	„ 17·4 „	0·2	0·8	3·7	5·3
5·2	10·2	14·4	5	d. 18 lb.	9·7	10·5	12·2	9·9
3·5	10·6	20·6	26·5	„ 14·5 „	4·6	8·8	19·9	31·7
4·4	9·2	6·5	2·8	sh. 21·5 „	5·9	10	6·7	3·8
34·4	73·2	106·7	85·6		52·5	82·1	104·8	115·8
1·3	3·2	4·7	3·8	d. 7 lb.	2	2·9	4·4	4
—	—	2·9	5·5	„ 18·7 „	—	—	2·9	6
2·9	3·4	2·8	1·9	sh. 43 cwt.	3	2·8	2·9	2·3
0·8	1·6	1·8	1·3	£ 36 ton	0·9	1·3	1·9	1·5
0·7	1·1	1·3	1	„ 51 tun	0·8	1	1·4	1·2
0·1	0·4	0·7	0·4	„ 38 „	0·13	0·4	0·7	0·5
1·5	3·2	4·4	4·3	sh. 55 qtr.	1·9	3·4	4·3	5·7
—	—	0·8	2	d. 12½ gall.	—	—	0·8	3·4
0·3	0·9	2·7	2·1	£ 9·2 ton	0·3	0·8	2·2	3·1
0·2	0·4	1·4	1·1	sh. 13·6 cwt.	0·2	0·4	1·4	1·4
1·2	2·5	2·4	2·4	„ 5·3 lb.	2·1	2·2	2·6	3
2·9	4·8	6·6	5	„ 60 load	2·6	3·9	6·3	6
2·4	5·2	10·2	9·7	„ 54 „	2·2	4·7	9·3	11·3
14·3	26·7	42·7	40·5		16·1	23·8	41·1	49·4
219·8	350·1	577·5	482·6		294·8	382·7	525·4	617·4

† Jute, figure for 1853.

2. Alterations in currencies, demonetisation of silver, and insufficient supply of gold.

It is impossible to decide which of these causes had the greater influence upon prices, but I am inclined to ascribe it to the second; the average decline on all the 45 descriptions of commodities combined, not in comparison with 1873, but with the average of *twenty-five* years, is too great to be simply explained away by the reduction of cost. It would be difficult to prove such a reduction in the case of a few articles, but it is out of the question if all commodities are considered combined. Those of which the increase

in production has been excessive have fallen much more than the general average. In the preceding chapter it has been shown, that though the increase in production is large, a similar increase—at least proportionately from one period to another—has been experienced in former epochs. While, however, in previous periods the circulation of money expanded simultaneously with the production of commodities, it was possible to maintain on the whole a certain price level for about twenty-five years. Now the monetary circulation is either stationary or the addition is unimportant, and gold, the standard metal of most countries, is exchanging for a greater quantity of commodities.

It is likely that the first cause would have occasioned a fall anyhow, but I consider it beyond doubt that if silver had not been demonetised, and if the production of gold had not decreased, the fall in prices would have been very much smaller. As in the twenty years prior to 1870, the quantity of money in Europe and North America would have been increased annually by about 15 million £, or by about 225 million £ in fifteen years.

The greatest fall took place during the last five years, when the United States drew their requirements of gold from Europe, while the greater part of the increase in production of commodities fell into the same epoch. The concurrence of these two causes made the depreciation particularly heavy of late. The United States are to be blamed for much of the disturbance which has lately taken place. It is the duty of every country, as soon as practicable, to abolish a forced currency. Some countries are unable to do so, but the United States were quite in a position, instead of repaying bonds, to withdraw the greenbacks. If the gold currency had been re-established soon after the civil war, less gold would have gone to Europe at that time, prices would perhaps not have risen quite so high in 1872-73, and the late decline and depression would probably have been much milder.

It has been frequently asserted of late that there is no "scarcity "of gold," as otherwise it would have been visible in the movements of the rate of discount; this rate rises if an important quantity of gold is withdrawn from the banks, and people speak then of a scarcity of gold. Such a scarcity as understood by bankers does not exist, and it would perhaps be more correct to speak of an "insufficiency of supply." Prices have fallen so much that a scarcity is not observable. As Mr. Giffen pointed out, there may be enough for present requirements, and the scarcity will only be felt when prices rise.

The contentions of some economists, "we have quite enough "money in our country," or "there is sufficient gold to carry on the "trade of the world," are valueless. They assume that there is a

certain quantity required, which need not be increased in case of larger transactions. Of course there is enough gold, and we could perhaps do with half the quantity; it only depends upon the state of prices; but it is not the question whether there is enough gold to carry on the trade of the world, or of a particular country, but whether there is enough to carry it on at a certain average range of prices to which we have been accustomed. Independent of political and financial disturbances, or of an extraordinary contraction of consumption, a fall in prices is usually occasioned by an increase in the production, at the moment at a greater ratio than is necessitated by the natural increase of population; for if there were no such increase there would be no cause for a fall. But if afterwards consumption is stimulated by the lower prices, and if the quantity of money increases, then prices rally, and even the larger quantity can be sold at the former prices. Thus as mentioned before, we had notwithstanding a great increase in production from 1850 to 1873, a maintenance or rise in prices as the circulating medium was constantly enlarged, while now the greater production not combined with an addition of money, depresses prices heavily. We have not had a so-called "scarcity" of gold, but what has been missing was the stimulus engendered by a new influx of gold.

The rate of discount was comparatively low on account of the great quantity of unemployed capital, occasioned by the unsatisfactory state of trade. Business with diminished profits attracted less new capital, and as people had at the same time reason to look with great distrust at many foreign loans, the new savings were put into the best investments, which caused a reduction in the general rate of interest. This reduction during the last ten or fifteen years amounts to between $\frac{1}{4}$ and 1 per cent. Consols yield $\frac{1}{4}$ per cent., and railway debentures $\frac{3}{4}$ to 1 per cent. less. Where the reduction is more than 1 per cent. (Colonial, United States bonds, &c.) the quality of the investment has improved. The bank-rate has usually followed the same course as the general prices of commodities, and consols (determining the rate of interest on the best investments) consequently the opposite course, as will easily be seen by a comparison of the principal movements:—

	Prices.	Bank-Rate.	Consols.
1847	95	$5\frac{1}{4}$	87
'51	75	3	97
'57	105	$6\frac{3}{4}$	92
'58	91	$3\frac{1}{4}$	97
'66	100	7	88
'69	98	$3\frac{1}{4}$	93
'73	111	$4\frac{3}{4}$	$92\frac{1}{2}$
'85	72	$2\frac{9}{10}$	99

The appreciation of gold has been denied, as the fall has not extended to all commodities, or not to all in the same degree. This however is by no means necessary. If the decline is caused by an insufficient increase in the monetary circulation, in comparison with the increase in the production, it stands to reason that the fall must be in some relation to the supply of commodities, as the ordinary laws of supply and demand are not annulled. Some articles may decline in sympathy with others under the pressure of bad business, and of a consequent contraction of demand, but others experiencing a similar movement as gold, viz., decreased production, and (or) increased demand, may hold their own in face of a fall for most commodities.

The decline of prices so far as occasioned by a reduction in the cost of production is a decided advantage for the consumer, as his principle will always be "the cheaper the better." The lower classes have therefore improved their position, as wages have only moderately fallen, while they can buy most of their requirements at lower prices. Altogether they are much better off than in the first half of the century, and what was formerly considered a luxury forms now part of their daily wants.

If we, however, say "the cheaper the better," we must not forget that "cheap" is a relative expression, and cannot mean "the "lower the better." If all prices, or the prices of most of the principal articles, fall, then it is a distinct disadvantage to all producing classes; they either lose heavily or have their profits curtailed. Capital is reduced, or does not increase at the usual ratio, and ultimately the loss to the whole community must be much greater than any small advantage to the consumer.

A real benefit is only derived by the classes with fixed incomes, and by capitalists possessing consols and similar safe investments, who can buy more commodities with their income. Many however had their interests reduced by 1 per cent., and their income therefore say by 20 to 25 per cent.

Many middlemen and agents, who receive percentage commissions, have suffered by the decline, though frequently they were able to balance the fall partly or wholly by larger transactions. But the rate of commission has often also been reduced under the pressure of bad business, and by the excessive competition. The increase of direct business, the telegraph, and quick communications, have done away with a number of middlemen.

Producers have been the severest sufferers, and particularly those of agricultural produce, who had to sustain the strong competition of cheap soil in extra-European countries, which became more effective by the reduction of freight and charges. The

consequence was a general decline in the value of land. It would be useless to try to prevent this decline by legislation (import duties, &c.), which could only be effective for the moment and not for any length of time. If other countries can produce cheaper than ourselves, the value of our land must fall. It is immaterial what was originally paid for the land, and its value is only dependent upon the price of its products.

The fear, frequently expressed, that we might be flooded with foreign products, is quite imaginary, as every increase in production and exports is accompanied by an increase in population and imports. Commerce is only an exchange, and if other countries want to sell us their products they have to buy of our own. It is useless to fight against a general decline of prices.

The ultimate range of prices is on the whole immaterial as it is not prices but quantities which keep people employed, but it is not at all immaterial how prices move, and every strong decline is accompanied by a severe crisis. The income is reduced, and people find it difficult or impossible to retrench, particularly if luxury has increased during a period of great prosperity. It is the period of transition under which we suffer, and when this is passed we may again expect better times.

We need not exaggerate the present depression, but it is evident that the general prosperity has of late received a serious check. This has contributed to the frequent discontent and to the development of socialism and of similar outgrowths of modern civilisation. Most people have to curtail their expenditure, and we observe a fall in the rent of houses, particularly in those of the better class, say from 100*l.* upwards. There is a falling off in the number of marriages and births. Coupled with an increase in the number of third class railway passengers there is a serious decrease in the first and second class. There is a much slower progress in the income tax than in former periods, and as this impost has of late been the object of much controversy, I give the following figures. 1873 was the year of the highest prices, the incomes were declared in 1874, and appear in the returns ending 5th April, 1875. The last return published is for 1885, and in the following I give a comparison of periods from ten to ten years :—

*Income, so far as Assessed to the Tax.**

	Assessed.	Increase in each Period.	Population.	Increase of Population in each Period.	Income Assessed per Head.	Increase in each Period, allowing for Increase of Population.
	Mln. £	Per cnt.	Mln. and dec.	Per cnt.	£ and dec.	Per cnt.
1845	264†	—	27·8	—	9·5	—
'55	308	16·6	27·8	—	11·1	16·8
'65	396	28·6	29·9	7·6	13·2	18·9
'75	571	44·2	32·7	9·4	17·5	32·6
'85	651‡	14·0	36·3	11·0	17·9	2·3

* Income assessed to tax excludes all incomes under 100*l.*, and since 1876 under 150*l.* At present the total income of the country is estimated at over 1,200 million £.

† Real figure 244 million £, excluding Ireland, for which 20 million £ are added.

‡ Real figure 631 million £; exemption raised in 1876 from 100*l.* to 150*l.*, by which it is estimated that about 20 million £ were excluded.

Whilst, allowing for increase of population, there was an increase in income so far as assessed to the tax in the first period of 17, in the second of 19, in the third of $32\frac{1}{2}$ per cent. (altogether in thirty years of 84 per cent.), the increase in the last ten years only amounts to $2\frac{3}{10}$ per cent. Besides the returns for 1885 show partly the income of 1883 and partly the average of 1881-83, and it would be curious if the returns for 1886-87, reflecting the income of 1884 and 1885 would not give more unfavourable results.

V.—*The Present State of the Silver Question.*

The reasons for the fall in the value of silver may be concentrated under two headings: the arbitrary (or political), and the natural causes. The arbitrary causes comprise the alteration in the currencies of Germany, Scandinavia, Holland, etc., and the stoppage of silver coinage of the Latin Union.

The natural causes are the increase in production from the old and from the new mines, partly worked for the large proportion of gold contained in the silver ore, and the tendency in the more valuable metal to dislodge the less valuable.* The large production of gold from 1850-70 had kept up high prices, had given an impulse to an enormous expansion of trade, and the wealth of the

* The great demand for silver for India from 1853-70 was mainly due to the Government requirements during the mutiny, to the great influx of gold into Europe, and the high prices for eastern produce, particularly cotton, thus necessitating a levelling of the increased monetary resources. The falling off in the demand may be mainly attributed to the opposite causes, and to the increase of Council drafts for balances due to England.

world had greatly increased. It is a natural tendency with increased wealth and high prices, to give preference to the more valuable metal having the smallest amount of bulk. It was, however, soon detected that the more valuable metal was not produced in sufficient quantity in order to replace the enormous stock of silver held in the various countries. In theory monometallism is undoubtedly the best, as, though we can fix a relative value at a certain time, we cannot know how the relative cost of production of several metals, and the demand for each separately according to inventions and new appliances will be at a future date. If the whole world had a gold standard, and there was no legal tender silver money in existence, it would not be necessary to discuss the matter at all, but if we return to the position we held some fifteen years ago, and remember that up to that time all prices in international trade were determined by gold and silver conjointly, the whole resolves itself into two questions :—

1. Is it desirable to maintain the influence of both metals upon prices ?

2. Is it desirable to adopt general gold monometallism at any price, because it is theoretically considered to be the better, and to destroy the united influence of both metals on prices previously existing ?

It is to be regretted that the first question was not or could not be answered in the affirmative at the time. Now it is almost too late, as the course of events has practically decided in favour of the second. The danger of this decision is however apparent, as it has caused a great fall in prices and great depression, and may cause further disturbances in the future.

There are two ways of adopting bimetallism; the one is to return to the old relation of 1 gold to $15\frac{1}{2}$ silver; the other is to take the present value of 1 to about 20. The former would certainly require an agreement between all the more important countries, particularly of England, Germany, France and the United States. But there is at present little chance of such an agreement on the part of England and Germany. Silver moreover has notwithstanding the strong decline of prices, been produced in ever increasing quantities, and a return to the old price level would cause a regular revolution in general prices, which might suit people very well who have large stocks to sell, and have great interests in the silver countries, but would not at all be desirable from a general point of view. Altogether it is very questionable whether a general agreement could ever be attained, if we consider how difficult it is to convince a few people of a certain theory, and here we should have to convince the representative bodies of a great number of States. If, however, an agreement should be

concluded, it would be in the interest of all parties to maintain the same.

The other measure, of taking the present value say of 1 to 20, might probably be upheld for a long time, even without England and Germany, if the United States and the Latin Union were to adopt this ratio, with a guarantee of England not to alter the present silver standard in India, and of Germany not to sell her silver. Spain, Holland, Austria, Russia, and South America would probably join this union, and the quantity of money held by these countries would be so preponderating in comparison to England and Germany, that the danger for them would not be very great of losing any important portion of their stock of gold. But this course also has little chance of success, as it would hardly be acceptable to the two countries mostly interested in the question, viz., France and the United States. The stock of full valued silver in the Latin Union and in Spain is estimated at 170 million £, and in the States at 40 million £. They would have to recoin that stock at a loss of 50 million £ (thus causing by one stroke a reduction in the quantity of money equal to a supply of four to five years), while with a gold currency they may as heretofore retain this silver at its nominal value, and have the chance of selling it at a higher price than the present in case of a general rise of prices. The prospects of bimetallism are therefore almost hopeless, but any attempt to re-establish the use of silver for currency purposes should receive the utmost assistance on the part of Germany, and principally of England, for which it is of the highest importance to obtain again greater steadiness in the Indian exchange.

If bimetallism cannot in some form be reintroduced, the general tendency in the world will be to adopt the pure gold standard, and the governments of many countries will be asked to dispose of the legal tender silver. The total amount of metallic money and gold bullion in Europe (excluding the Balkan Peninsula), the United States and Australia, at the end of 1884, may be estimated at—

£		
645	millions	gold.
260	„	silver, legal tender.
107	„	„ token money.
1,012	„	

The following are the detailed figures :—

	Gold.	Silver.	
		Legal Tender.	Token.
	Mln. £.	Mln. £.	Mln. £.
United Kingdom	120	—	19·5
Scandinavia	6	—	2·1
Russia	29	—	11·4
Austria	10	14	3·5
Germany	84	22·5	22
Holland	3	22·5	0·7
Belgium	14	12	1·3
France	176	136	11
Switzerland	3	1·5	0·7
Italy	29	7	6·8
Spain	27	15	8
Portugal	6	—	2
Australasia	18	—	1
United States	120	40	17
	645	260·5	107

All such estimates must of course be taken with some reserve, but the above are from the best authorities; the continental figures are according to Mr. Ottomar Haupt, and do not differ materially from those published by Mr. Soetbeer. (The United States currency has in 1885 been increased by another 5 million £ legal tender silver.) The circulation of the remainder of the world, viz., Balkan Peninsula, Canada, Central and South America, Africa, and Asia, has been roughly estimated up to 150 million £ gold and 400 million £ silver, but there can hardly be any sufficient data for such estimates. The absorption of precious metals by the East has certainly been enormous, and is estimated by Mr. Soetbeer, from 1851-84, at 640,000 kilos. gold = 87 million £, and 40,800,000 kilos. silver = 359 million £. The silver coinage of India during the same time has amounted to 220 millions, and to 50 million £ from 1836-50, but much of the coinage has probably been melted and hoarded by natives. If we take the total metallic circulation of the world at 750 millions gold and 750 millions silver, we shall probably not be far from the truth.

Of the legal tender money about 60 million £ might be required to increase the token money, leaving about 200 million £ to be disposed of. If these or any important part of the same were thrown on the market, the loss would be too great; it is therefore not likely that the governments will resort to such a step, and every effort ought to be used to convince them that it is not at all necessary. All agitations on the part of the monometallists, particularly in Germany, in favour of such a course, are exaggerated; they say that the rate of discount has to conform to the quantity of gold in possession of the banks without reference to the silver they hold. But the cash in the coffers of the banks is to cover the note circulation and the home liabilities, which can

always be paid with silver. Of course if the various countries follow by constant alterations in the currency, a policy of pilfering their neighbours of the gold they possess, then it may be necessary to protect that stock of gold, but under ordinary circumstances a demand for export of gold extends only to a few millions which as a rule quickly return. At the same time the quantity of silver is not enlarged, while it may fairly be supposed that the gold money will be steadily increased, though perhaps only slightly. In Germany especially the stock of full legal tender silver is so small (say 22½ million £ in thalers against 84 million £ in gold), that it cannot be of any danger to the gold standard. Besides, the population is constantly increasing, and the greater requirements of token money will absorb part of the legal tender thalers (say at the rate of 250,000*l.* a year, viz., annual increase of population 500,000 at 10*s.* per head).

If no fresh silver is to be coined, then at least let us keep what stock there is. It has been proposed to withdraw the gold coins under 20*s.* or 20 frs. in order to get more silver into circulation. This would do away with very expensive coins but would not otherwise materially assist in the matter. If on the other hand people find silver too heavy to carry in their pockets, and if the banks will not have it either, then let it be deposited at the treasury and small silver certificates, say of 10 mks. or frs., issued against it, a paper money repayable in silver coin.

Of course if there were no silver it would be much better, but we cannot suddenly replace it by gold. Where should all the gold come from? Any further contraction of currency would make the present depression much worse. What we require is a new influx of gold, but we have none to spare.

Should it be nevertheless decided to sell the silver, it is to be hoped that the governments will spread the sale over a great many years, in order to reduce the unfavourable influence as much as possible. There is not the slightest hurry.

With regard to the Bland Bill (under which the United States' Government has to coin at least 2 million $ per month, or 24 million $ per year) it must be admitted that this Bill should be repealed, if no bimetallic convention can be concluded, as the silver dollar cannot be kept in circulation, and as the quantity of silver coined is already too great for a gold standard. The effect of the repeal will probably not be by far so disastrous as is sometimes supposed. We have to deal with an exactly defined additional supply of silver, viz., 5 million £ (or at its present value 4 million £) per year, or about 400,000*l.* per month, and this cannot have such an extraordinary effect on the price of silver as we had in 1876, when it was impossible to know what proportion

of its stock of 60 million £ silver Germany would pour upon the market. The stock of silver in the silver using countries has been roughly estimated at about 400 millions £ (at its old value), and each fresh fall in its value will increase their requirements. Supposing the problem could be stated mathematically, we might argue as follows: if the silver currency amounts to 400 million £, or say only 300 million £, an additional supply of 5 million £ per year will only act at the rate of 1½ per cent. annually, until the production of silver receives a check, or the consumption for other purposes than money is greatly enlarged.

It has of late been proposed to stop the free coinage of silver in India and to fix the value of the rupee. This would be the worst thing that could be done in the general interest of the world, not on account of any additional depreciation of silver, but for the new demand for gold. It could not be made effective without at least a certain amount of gold coin in India, which would have constantly to be increased. This would lead to practically the same condition of things as now in France, Germany and Holland, a standard with coins of two metals as full legal tender, a restricted double standard. The sale of the enormous stock of silver in India is out of the question. At present Indians are accustomed to melt rupees and to work them into bangles, &c. If the coinage was stopped they would be able to buy bars cheaper in the market, this would throw distrust upon the coinage of the country, and it is more for politicians than economists to judge of the possible effects of this distrust. The large populations of India with but small incomes require a great deal of silver; they like silver, why alter their standard?

A great additional demand for silver can only be expected by the much talked of opening of China with its enormous population, and by a great development of trade in Africa. Russia and Austria might require much silver, but with the gold standard in other European countries, they will also adopt gold as soon as they are in a position to abolish their paper circulation.

VI.—*The Future of Prices.*

It is not intended to inquire into the detailed conditions of the trade in each separate article, but only to consider the general influences which may act upon prices. We have seen that the extra demand for gold for changes in the currencies of various countries, coupled with a falling off in its production, has not permitted an extension of the monetary circulation of the world necessary for the expanded volume of trade, and we have stated this as one among others, but as a very important cause for the fall in prices. We have to examine now whether any such new

extra demand is impending. It has already been mentioned where another demand could come from, viz., from the sale of the legal tender silver possessed by a number of States having the gold standard, by the withdrawal of the forced paper currency in Russia and Austria (and also in South America), and by a change in the standard of India. The last named contingency we will not discuss any further; the first would require about 200 million £, the second about 100 million £ for Russia and Austria alone. This would absorb the production of gold of between thirty and sixty years so far as available for currency. We have already expressed the hope that the Governments will be persuaded not to sell the silver at all, or to do it in such small amounts as not to disturb trade too much. The withdrawal of paper money in Russia and Austria may be expected within reasonable time, though these countries are not just now in a position to effect it. For the present we need not therefore expect a fresh extra demand, and in so far the outlook is certainly more favourable than it has been for some time.

The production of gold is now scarcely more than 19 to 20 million £ per year. If we deduct only 10 million £ for the requirements in arts and manufactures (instead of 12 million £ as estimated by Mr. Soetbeer), and only 3 million £ for Asia and other silver using countries, we retain about 6 to 7 million £ for Europe and other gold countries. Their stock of metallic money has been estimated at 1,000 million £, and according to the natural increase of population of 1 per cent., the annual addition should be at least 10 million £. The addition will therefore be insufficient, but still it is something, while of late years we have practically seen nothing of the gold production. The expansion of trade is however still greater than the natural increase of population, and according to the experience of the last thirty-five years it probably amounts to over 2 per cent. annually, but it is to be hoped that means will still be found to further economise the use of money, particularly on the continent, by an extension of banking, &c.

With regard to new sources of supply, it is confidently predicted that much gold will be found in Africa (and also in India), but it is at present impossible to say whether it will pay to raise the same. Better prospects for the immediate future we find in Queensland, where a new mine, the Mount Morgan, is now being worked, which is described as exceedingly rich, though we cannot know yet whether the sanguine expectations will be realised. In other mines too the production has been increased in Queensland during the last two years, and a further increase may be looked for in the present year. From the new territory of Northern Australia we may also obtain more gold, and

new discoveries of alluvial gold have this year been made in the adjoining parts of Western Australia. On the whole, however, gold has to be produced at a greater cost in Australia, as in many parts the alluvial deposits are almost exhausted, and the gold has for the greater part to be obtained by quartz crushing. It is to be hoped that the low prices of commodities will stimulate the production of gold, and will cause a decrease in its consumption in arts and manufactures.

The production of commodities has received a check in many branches, which must by and bye exercise a favourable influence upon prices. It would indeed be an enormous depreciation were we to keep the present range of prices on the average for any length of time. Possibly the decline has gone too far, and with production arrested, and with some addition to the currency during the next few years, the prospects are if anything rather brighter. The large production of food in several of the new countries, and the extension of railways will soon cause an increase in their population and in their requirements, while railway construction in China, and the opening up of this country (which may, however, still be very distant) would give a great stimulus to the trade with Eastern Asia.

We must, on the other hand, not forget that in the long run the addition to the currency will not be sufficient if gold is to remain the sole measure of value, and if its production does not materially increase; and that sooner or later we shall have to face fresh demands arising through the withdrawals of paper money, and possibly also from the sale of silver. We must therefore be prepared that with the usual upward and downward movements the *average* prices of the next decades will show some further decline as compared with the average of the last eight years. There are no means of arresting this decline except perhaps by the further extension of the substitutes for money, and the decline will be necessary in order to reduce the consumption and the cost of production of gold, thus causing again an increase in the supply of this standard metal for currency purposes.

The ultimate value of gold, or in other words the ultimate state of prices, will be immaterial to the welfare of a future generation, but to the present the transition will be gradual and trying. The wealth of the world, expressed in gold money, need not decrease, but with falling prices it will advance more slowly than during the past thirty years, which will probably be remembered in the history of commerce as a period of extraordinary trade expansion.

APPENDIX A.

Construction of the Tables.

In constructing the table of prices I have on the whole been guided by the system adopted in the well known excellent researches of Mr. Newmarch (continued in the annual review of the "Economist") and of Mr. Jevons (up to 1862). During the past seven years I have collected the monthly prices of such descriptions of commodities which at least for the more important articles may at the present time be considered as *standard* descriptions. It was at first only my intention to retrace the matter to the year 1867, and I based my comparison on the average prices of the eleven years 1867-77, for reasons which have been explained in the chapter on the course of prices; but I found it desirable to go still further back to the years preceding the great gold discoveries, and am now enabled to give a complete set of prices since 1846. In some cases it was impossible to retain exactly the same standard for this long period, owing to the frequent alterations of descriptions; and the old quotations for a few articles such as sugar, coffee and flax, must be considered as only approximately showing the course of prices, though the greatest pains have been taken to maintain their standard as near as possible. During certain periods the prices for sugar were quoted "duty paid," and in such cases the duty was deducted, all dutiable articles being uniformly rendered as "in "bond."

With but few exceptions the prices given are the average prices in each year, either those officially returned or the averages of the twelve quotations at the end of each month, partly received from private firms, partly collected from the "Economist" and other publications. Where a range of prices is given, the mean has been taken between the highest and lowest quotations.

The system of average annual quotations, levelling as it does the various fluctuations of the year, I consider to be preferable to quotations on certain dates.

Only such commodities have been included in the tables the value of which in the United Kingdom (production and imports) has of late amounted to about a million £ or more; smaller articles have been excluded, but a few important ones like wine, spirits, and tobacco, had to be left out, as no reliable data were obtainable.

The Table of *Index Numbers* is based on the average prices of the eleven years 1867-77, and the index numbers have been calculated in the ordinary arithmetical way; for instance English wheat:—

English Wheat.

	s.	d.	
Average, 1867–77	54	6	= 100, average point.
„ '55	74	8	= 137, or 37 per cent. above the average point.
„ '85	32	10	= 60 „ 40 „ below „

The index numbers therefore represent simple percentages of the average point.

Certain articles which appear to have something in common have been grouped together, with the following result :—

		Example for 1885.	
		Total Numbers.	Average.
1. Vegetable food, corn, &c. (wheat, flour, barley, oats, maize, potatoes, and rice) ...	With 8 Index Nos.	546	68
2. Animal food (beef, mutton, pork, bacon, and butter) ...	„ 7 „	618	88
3. Sugar, coffee, and tea ...	„ 4 „	250	63
1—3. *Food* ...	„ 19 „	1,414	74
4. Minerals (iron, copper, tin, lead, and coals) ...	„ 7 „	463	66
5. Textiles (cotton, flax, hemp, jute, wool, and silk) ...	„ 8 „	521	65
6. Sundry materials (hides, leather, tallow, oils, soda, nitrate, indigo, and timber) ...	„ 11 „	836	76
4—6. *Materials* ...	„ 26 „	1,820	70
General average ...	„ 45 „	3,234	72

Olive oil, though also an article of food, has been classed with sundry materials.

The *general average* is drawn from all 45 descriptions (from 1846-66 only 43, from 1867-72 only 44), and is the simple arithmetical mean as shown above. All the 45 descriptions of commodities are treated as of equal value, the more important articles however being represented by more than one index number, viz., wheat (with flour) by three, beef, mutton, pork (with bacon), sugar, iron, coals, cotton, wool and hides (with leather), by two numbers each. Where it was supposed that one quotation would not sufficiently represent the commodity, two quotations were taken, and the index number was calculated from the mean of both, viz., in the case of coffee, tea, flax, hemp, merino wool, hides, tallow, linseed oil and timber.

All articles have been calculated at their actual prices, and no correction has been made for extraordinary fluctuations. The

extreme prices of cotton during the American war raised the general average considerably, but by the test of quantities—according to the importance of each article—I find that the index number for all commodities of 105 in 1864 is quite exact.

Petroleum is only included from 1873, as before that time it was an article of less importance, and its high prices would have unduly influenced the low prices from 1868-70.

The index numbers of years before 1846 as given in the diagram of fluctations, are calculated from the average prices of the 31 principal commodities, the descriptions corresponding as nearly as possible with those since 1846. They are as follows, 1818-20 reduced to the gold standard, 1867-77 = 100:—

1818	142	1825	117	1832	89	1839	103
'19	121	'26	100	'33	91	'40	103
'20	112	'27	97	'34	90	'41	100
'21	106	'28	97	'35	92	'42	91
'22	101	'29	93	'36	102	'43	83
'23	103	'30	91	'37	94	'44	84
'24	106	'31	92	'38	99	'45	87

Special Explanations of some Articles.

No. 2. *Wheat.*—American red winter. The quotations can only be given from 1871, and the index numbers prior to that year are the same as for English wheat. American red winter was for a number of years a very important standard article, but very little has of late been received in this market.

No. 3. *Flour.*—Town made white, ordinary quotation, and not the nominal top price.

No. 7. *Potatoes.*—Good English, mostly Kent regents, average prices of eight months only, viz., January to April, and September to December, as the prices from May to August are often exceptional.

No. 8. *Rice.*—Rangoon to arrive, before 1867 Rangoon or Madras on spot.

Nos. 9–13. *Meat.*—By the carcase in the London meat market.

No. 16A. *Sugar.*—British West Indian, refining, middling quality. Average price for 1867-77 = 23*s.*; average Board of Trade price of raw sugar imported, 1867-77 = 23*s.* 4*d.*

No. 17. *Sugar.*—Java floating cargoes, before 1878 spot prices of grey and white.

No. 18B. *Coffee.*—Good Channel Rio ex quay, formerly spot prices of good Brazil.

No. 19B. *Tea.*—Average import price of the Board of Trade, before 1855 from "McCulloch's Dictionary."

No. 21. *Iron Bars.*—Cleveland common, or lowest price of British bars in the "Economist."

No. 22. *Copper.*—Chili bars. Prices before 1862 are nominal, calculated in proportion with English tough cake, the prices of which are also given.

No. 29. *Flax.*—No. 29A St. Petersburg 12 head, top prices; from 1867 to 1878 the average between the two quotations in June and December, for which I am indebted to the courtesy of Messrs. Geo. Armitstead and Co., Dundee. Since 1878 annual averages collected by myself. 29B, Board of Trade import prices from 1855, before that Riga flax. I had some considerable difficulty in obtaining reliable quotations.

No. 32. *Merino Wool.*—Average prices of the London public sales, collected by myself and partly given in my treatise on the production and consumption of wool.

No. 34. *Silk.*—Tsatlee blue elephants, or No. 4 before 1870.

No. 37. *Tallow.*—Very little Russian tallow is now imported. The prices of town tallow from 1876 are almost the same as the average prices of Australian mutton and beef, which were as follows:—

	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	1884.	1885.
Mutton, *s.* pr. cwt.	43	42	39	36	36	39	45	44	38	30
Beef „	41	40	37	34	34	37	43	42	37	29

No. 44. *Indigo.*—Bengal good consuming, before 1878 at the end of year, since 1878 annual average prices.

No. 45. *Timber.*—The quotations of timber, with a somewhat wide range, I found to be rather unsatisfactory, and I preferred the Board of Trade prices, which probably fairly illustrate the course of prices. The prices before 1855 are of Canadian yellow pine at the end of each year.

Groups of Articles.—Table of Summary.

Silver.—The index numbers do not compare with the average prices of 1867-77, but with the price of $60\frac{84}{100}d.$ per ounce, being the exact parity of the old ratio of $15\frac{1}{2}$ silver to 1 gold. The index numbers of silver are not included in the general average of prices.

Harvest in England.—An average of 28 bushels per acre equal to 100. 1849-78 according to Sir James Caird's valuable estimates; from 1879 to 1883 according to the "Times;" 1884-85 from official returns.

Consols and Bank Rate.—Actual figures, not index numbers.

APPENDIX B.

Average Prices

No. of Article.	0	1	2	3	4	5	6	7	8
		Wheat.		Flour.	Barley.	Oats.	Maize.	Potatoes.	Rice.
Year.	Silver.	English Gazette.	American.*	Town Made White.*	English Gazette.	English Gazette.	American Mixed.	Good English.*	Rangoon, Cargoes to arrive.*
	d. per oz.	*s.* and *d.* per qr.	*s.* and *d.* per qr.	*s.* per sack (280 lbs.).	*s.* and *d.* per qr.	*s.* and *d.* per qr.	*s.* per qr.	*s.* per ton.	*s.* and *d.* per cwt.
1846	59 5/16	54·8	—	51	32·8	23·8	39	125	13·6
'47	59 11/16	69·9	—	58	44·2	28·8	45	160	15·6
1848	59 1/2	50·6	—	46	31·6	20·6	32	120	8·9
'49	59 3/4	44·3	—	41	27·9	17·6	28	95	7·9
'50	60 1/16	40·3	—	37	23·5	16·5	28	85	8·6
'51	60 3/8	38·6	—	36	24·9	18·7	28	70	8
'52	60 11/16	40·10	—	39	28·6	19·1	29	90	9
'53	61 9/16	53·3	—	52	33·2	21	35	135	10·9
'54	61 1/2	72·5	—	65	36	27·11	43	120	12·3
'55	61 1/4	74·8	—	68	34·9	27·5	43	95	13
'56	61 7/16	69·2	—	62	41·1	25·2	35	85	10
'57	61 3/4	56·4	—	51	42·1	25	37	115	10·3
1858	61 7/16	44·2	—	40	34·8	24·6	33	100	7·6
'59	62 1/16	43·9	—	41	33·6	23·2	31	90	8·6
'60	61 1/16	53·3	—	48	36·7	24·5	35	110	10·3
'61	60 3/4	55·4	—	52	36·1	23·9	37	115	10·6
'62	61 3/8	55·5	—	47	35·1	22·7	31	120	10·6
'63	61 1/2	44·9	—	41	33·11	21·2	29	90	11
'64	61 3/8	40·2	—	38	29·11	20·1	29	75	9·6
'65	61	41·10	—	39	29·9	21·10	30	85	10·9
'66	61 1/8	49·11	—	45	37·5	24·7	32	85	12
1867	60 9/16	64·5	—	57	40	26	41	130	11·9
'68	60 1/16	63·9	—	54	43	28·1	39	125	11
'69	60 1/2	48·2	—	40	39·5	26	31	85	9·6
'70	60 1/8	46·10	—	41	34·7	22·11	30	90	9·6
'71	60 9/16	56·8	56	44	36·2	25·2	33	80	9·10
'72	60 1/4	57	59	46	37·5	23·2	29	140	10
'73	59 1/4	58·8	63	51	40·5	25·5	30	160	9·6
'74	58 5/16	55·8	57	47	44·11	28·10	38	105	10
'75	56 3/4	45·2	48	40	38·5	28·8	34	105	8·3
'76	52 5/8	46·2	48	41	35·2	26·3	26 3/4	135	9
'77	54 7/8	56·9	55	45	39·8	25·11	27 1/4	130	10
1878	52 9/16	46·5	48	38	40·2	24·4	25	155	10
'79	51 1/4	43·10	48	36	34	21·9	23 3/4	130	9·7
'80	52 1/4	44·4	51	39	33·1	23·1	25 3/4	130	9·1
'81	51 11/16	45·4	52	40	31·11	21·9	27 3/4	85	8·4
'82	51 1/8	45·1	48·6	40	31·2	21·10	31	95	7·5
'83	50 9/16	41·7	45	36	31·10	21·5	27 3/4	105	8·1
'84	50 11/16	35·8	36·6	31	30·8	20·3	25 1/4	75	7·8
'85	48 5/8	32·10	35	29	30·1	20·7	23	75	7

* See special

APPENDIX B.

of Commodities.

9	10	11	12	13	14	15	16A	16B	17
Beef.		Mutton.		Pork.	Bacon.	Butter.	Sugar.		
Prime.	Middling.	Prime.	Middling.	Large and Small, Average.	Waterford.	Friesland, Fine to Finest.	British West Indian, Refining.	Beet, German (or French), 88% f.o.b.	Java, Floating Cargoes.*
d. per 8 lbs.	*d.* per 8 lbs.	*d.* per 8 lbs.	*d.* per 8 lbs.	*d.* per 8 lbs.	*s.* per cwt.	*s.* per cwt.	*s.* per cwt.	*s.* per cwt.	*s.* per cwt.
40	34	53	48	52	57	102	33	—	33
45	40	55	50	54	72	101	27	—	28
41	37	53	47	52	68	98	20	—	21
38	32	44	38	43	58	88	22	—	24
36	30	43	37	41	49	82	23	—	25
37	30	44	38	40	51	87	23	—	26
37	31	44	38	38	54	88	20	—	23
45	39	54	47	45	63	100	22	—	26
50	43	54	47	49	67	103	20	—	25
50	44	53	46	48	68	106	24	—	29
48	41	53	46	50	71	115	28	—	33
48	42	54	46	52	70	116	34	—	41
47	41	51	44	44	59	117	24	—	33
48	41	53	47	47	59	115	23	—	31
50	42	56	50	54	68	113	24	—	32
49	42	55	50	54	70	113	22	—	29
46	39	53	48	52	65	113	20	—	28
47	41	54	48	48	63	107	21	—	27
50	44	55	51	49	65	109	26	—	32
53	46	64	58	55	69	116	22	—	27
53	47	61	55	54	73	112	21	—	26
52	45	55	50	45	62	116	22	22	28
50	43	51	47	45	66	126	22	22½	28
55	46	58	51	55	76	115	24	24½	30
56	48	58	52	56	74	124	23	23½	30
60	53	63	59	51	63	130	25½	25½	31
59	52	67	61	50	72	119	25½	26½	30
65	56	71	63	54	81	123	22½	25	28
62	51	62	53	54	80	134	21½	24	26½
64	55	71	59	57	80	126	20	22½	25
62	52	72	58	59	81	135	21½	23	26
61	49	69	54	51	75	127	24½	25½	30
61	49	68	55	50	74	122	20	21½	25
55	45	64	52	48	72	107	19	21¼	24
58	49	66	54	55	76	125	20½	21½	25½
56	48	69	57	54	76	123	21¼	22	26½
60	51	72	60	51	74	125	20	21½	25½
61	51	73	61	49	72	123	19	20¼	24½
58	49	64	53	48	70	120	13¼	13¼	17½
52	44	56	47	45	68	111	13½	14¼	17½

remarks.

Average Prices of

No. of Article.	18A	18B	19A	19B	20	21	22	—	23
	Coffee.		Tea.		Iron.		Copper.		Tin.
Year.	Ceylon Plantation, Low Middling.	Rio, Good Channel.*	Congou, Common.	Average Import Price.	Scotch Pig.	Bars.	Chili Bars.	English Tough Cake.	Straits.
	s. per cwt.	*s.* per cwt.	*d.* per lb.	*d.* and dec. per lb.	*s.* and *d.* per ton.	£ per ton.	£ per ton.	£ per ton.	£ per ton.
1846	52	32	9¼	13	67·3	9½	83*	91	90
'47	49	33	9	13	65·4	9¾	89*	97	87
1848	40	29	7¾	12¼	40·4	7	78*	85	78
'49	47	36	8½	13	45·6	6¼	77*	84	77
'50	56	48	11	15¼	44·2	5⅞	78*	85	78
'51	50	39	10½	14¼	39·9	5½	78*	85	82
'52	51	41	8¼	12¼	45·1	6¼	89*	97	85
'53	56	46	11¼	15¼	62·3	9¼	106*	116	113
'54	55	50	11¼	15½	79·8	10	115*	126	116
'55	56	44	9	15·06	70·9	8½	115*	126	115
'56	58	46	9¼	14·61	72·6	8⅞	108*	119	133
'57	67	51	13	17·41	69·2	8¼	113*	124	134
1858	63	43	11¼	16·56	54·4	7	98*	108	117
'59	67	52	14¾	18·58	51·9	6¾	98*	108	134
'60	68	60	16¼	18·65	53·6	6½	95*	105	131
'61	69	55	12	17·02	49·3	6	89*	99	119
'62	81	60	13½	19·18	53	6¼	87	97	116
'63	81	67	12¾	18·71	55·9	7	86	94	120
'64	77	67	11	18·21	57·3	8¼	89	101	104
'65	78	58	11	19·88	54·9	7¾	83	92	91
'66	79	51	11¾	19·27	60·6	7¼	81	88	82
1867	76	45	11¾	18·87	53·6	6¾	71	78	87
'68	71	39	14	19·27	52·9	6⅜	70	76	95
'69	71	43	13	17·78	53·3	6¾	69	75	126
'70	64	45	12	17·18	54·4	7⅜	65	70	125
'71	67	56	11½	16·44	58·11	7⅝	69	75	134
'72	79	71	11½	16·78	101·10	11	93	96	146
'73	100	86	12	16·67	117·3	12½	84	92	132
'74	112	84	11½	17	87·6	10¼	79	88	98
'75	105	80	11	16·73	65·9	8⅜	82	88	84
'76	105	74	9½	16·42	58·6	7¼	76	82	74
'77	102	77	7¾	15·98	54·4	6¾	68	75	68
1878	101	62	7¾	15·29	48·5	5⅝	62	67	61
'79	90	58	9	14·68	47	5¾	58	64	73
'80	87	61	8¾	13·47	54·6	6¾	63	68	88
'81	80	49	6½	12·82	49·1	5⅜	62	67	93
'82	65	39	5	12·58	49·4	6¼	66	71	102
'83	76	43	5¾	12·46	46·9	5¾	63	67	93
'84	62	47	6¼	11·78	42·1	5⅛	54	59	81
'85	60	39	6½	12·06	41·10	4⅞	43	47	87

* See special remarks.

Commodities—Contd.

24	25	26	27	28	29A	29B	30A	30B	31
Lead.	Coals.		Cotton.		Flax.*		Hemp.		Jute.
English Pig.	Wallsend, Hetton, in London.	Average Export Price.	Middling Uplands.	Fair Dhollerah (Surat).	St. Petersburg, 12-Head Best.	Russian Average Import.	Manilla, Fair Roping.	St. Petersburg, Clean.	Good Medium.
£ per ton.	*s.* per ton.	*s.* and dec. per ton.	*d.* per lb.	*d.* per lb.	£ per ton.	£ per ton.	£ per ton.	£ per ton.	£ per ton.
19	18	7·67	$4\frac{7}{8}$	$3\frac{1}{2}$	—	49*	38†	33	18†
$18\frac{3}{4}$	$20\frac{1}{2}$	7·80	$6\frac{1}{8}$	$4\frac{1}{2}$	—	50*	39†	38	17†
17	18	7·81	$4\frac{1}{8}$	$3\frac{1}{4}$	—	39*	35†	32	15†
$15\frac{3}{4}$	$17\frac{1}{2}$	7·69	$5\frac{1}{8}$	$3\frac{7}{8}$	—	37*	31†	30	15†
$17\frac{3}{4}$	17	7·66	7	$5\frac{1}{4}$	—	42*	32†	31	16†
$17\frac{1}{2}$	16	7·51	$5\frac{1}{2}$	$4\frac{1}{4}$	—	46*	44†	29	13†
$17\frac{3}{4}$	$16\frac{1}{2}$	7·54	$5\frac{5}{16}$	$4\frac{1}{4}$	—	47*	44†	32	16†
24	22	8·16	$5\frac{3}{4}$	$4\frac{1}{8}$	—	48*	44†	37	22†
24	$23\frac{1}{2}$	9·87	$5\frac{3}{8}$	$3\frac{5}{8}$	—	57*	55†	58	18†
$23\frac{1}{2}$	22	9·83	$5\frac{3}{8}$	4	—	51	45	47	19†
25	$18\frac{1}{2}$	9·61	$6\frac{5}{16}$	$4\frac{3}{4}$	—	44	43	36	18†
$24\frac{1}{4}$	$18\frac{1}{2}$	9·52	$7\frac{3}{4}$	$5\frac{1}{2}$	—	36	32	34	17†
$22\frac{1}{4}$	18	9·33	$6\frac{7}{8}$	$5\frac{1}{2}$	—	46	28	29	16†
$22\frac{1}{2}$	$18\frac{1}{2}$	9·33	$6\frac{3}{4}$	5	—	52	25	29	16†
22	$20\frac{1}{2}$	9·06	$6\frac{1}{4}$	5	—	50	24	30	16†
$20\frac{1}{2}$	20	9·19	$8\frac{9}{16}$	$6\frac{5}{16}$	—	48	22	32	$17\frac{1}{2}$
$20\frac{3}{4}$	18	9·05	$17\frac{1}{4}$	$12\frac{7}{8}$	—	56	26	36	21
$20\frac{3}{4}$	18	9	$23\frac{3}{4}$	$19\frac{1}{4}$	—	54	27	40	27
21	20	9·48	$27\frac{1}{2}$	$21\frac{1}{2}$	—	53	33	35	$25\frac{1}{2}$
20	20	9·69	19	$14\frac{1}{2}$	—	52	33	31	$19\frac{1}{2}$
$20\frac{1}{2}$	$19\frac{1}{2}$	10·29	$15\frac{1}{2}$	12	—	55	46	34	22
$19\frac{3}{4}$	20	10·39	$10\frac{7}{8}$	$8\frac{3}{4}$	41	55	50	36	$19\frac{1}{2}$
$19\frac{1}{4}$	$18\frac{1}{2}$	9·92	$10\frac{1}{2}$	$8\frac{1}{2}$	$48\frac{1}{2}$	52	49	38	$19\frac{1}{4}$
$19\frac{1}{4}$	$18\frac{1}{2}$	9·62	$12\frac{1}{8}$	$9\frac{3}{4}$	47	52	48	36	19
$18\frac{1}{2}$	$18\frac{1}{2}$	9·64	$9\frac{15}{16}$	$8\frac{1}{8}$	$45\frac{1}{2}$	50	54	34	$22\frac{1}{4}$
$18\frac{1}{4}$	19	9·80	$8\frac{9}{16}$	$5\frac{13}{16}$	$41\frac{1}{2}$	45	49	33	$23\frac{1}{2}$
$20\frac{1}{4}$	$25\frac{1}{2}$	15·83	$10\frac{9}{16}$	$7\frac{1}{2}$	49	48	48	36	$20\frac{1}{2}$
$23\frac{1}{2}$	32	20·90	9	$6\frac{3}{16}$	$47\frac{1}{2}$	44	43	36	18
$22\frac{1}{4}$	25	17·21	8	$5\frac{5}{16}$	44	42	38	34	18
$22\frac{1}{2}$	24	13·28	$7\frac{3}{8}$	5	$49\frac{1}{2}$	45	32	34	$16\frac{1}{2}$
$21\frac{3}{4}$	21	10·93	$6\frac{1}{4}$	$4\frac{1}{2}$	47	47	30	37	$16\frac{1}{2}$
$20\frac{1}{2}$	20	10·17	$6\frac{5}{16}$	$5\frac{3}{16}$	45	43	28	35	$17\frac{1}{2}$
$16\frac{5}{8}$	18	9·46	$6\frac{1}{8}$	$4\frac{15}{16}$	$39\frac{1}{2}$	40	25	29	17
$15\frac{1}{2}$	18	8·77	$6\frac{5}{16}$	5	34	35	27	25	$16\frac{1}{2}$
$16\frac{1}{2}$	$15\frac{1}{2}$	8·95	$6\frac{15}{16}$	$5\frac{1}{4}$	35	40	30	23	$18\frac{3}{4}$
$15\frac{1}{2}$	17	8·97	$6\frac{7}{16}$	$4\frac{3}{8}$	$32\frac{1}{2}$	33	43	24	$18\frac{1}{2}$
$14\frac{1}{2}$	17	9·14	$6\frac{5}{8}$	$4\frac{5}{16}$	$29\frac{1}{2}$	$30\frac{1}{2}$	46	24	15
$12\frac{7}{8}$	18	9·35	$5\frac{3}{4}$	$3\frac{7}{8}$	30	$30\frac{1}{2}$	46	26	$14\frac{1}{4}$
$11\frac{1}{4}$	$16\frac{1}{2}$	9·29	6	$3\frac{15}{16}$	$29\frac{1}{2}$	$30\frac{3}{4}$	38	29	$13\frac{1}{2}$
$11\frac{3}{8}$	$16\frac{1}{2}$	8·95	$5\frac{5}{8}$	$4\frac{1}{4}$	34	35	35	29	12

† Prices at end of year, and not annual average.

Average Prices of

No. of Article.	32A	32B	33	34	35A	35B	36	37A	37B
	Wool.			Silk.	Hides.		Leather.	Tallow.	
Year.	Merino, Pt. Phillip, Average Fleece.	Merino, Adelaide, Average Grease.	English Lincoln Half Hogs.	Tsatlee.*	River Plate, Dry.	River Plate, Salted.	Crop Hides, 30—45 lbs.	St. Petersburg, Y.C.	Town.
	d. per lb.	*d.* per lb.	*d.* per lb.	*s.* per lb.	*d.* per lb.	*d.* per lb.	*d.* per lb.	*s.* per cwt.	*s.* per cwt.
1846	18	—	13	16	6½	—	11	44	—
'47	16	—	12	14	5⅞	—	10½	48	—
1848	13	5½	11	13	4¾	—	9¾	47	—
'49	16	7	10	15	4⅝	—	9½	39	—
'50	17	7½	11	19	4⅞	—	9½	37	—
'51	17	7½	12½	18	5¾	—	10	38	—
'52	19½	9	13½	18	5½	—	9½	39	—
'53	20	9½	16	18	6⅝	—	12¼	51	53
'54	18	8¾	15½	16	7⅜	—	13½	65	66
'55	19½	9¼	13	16	8¾	6	13½	57	58
'56	23	11	16	22	10¾	8	14½	53	54
'57	23	11½	20½	24	13½	8½	19¼	58	59
1858	22½	11	15⅝	19	11	7	15	52	54
'59	23½	11½	18⅝	21	11¼	8	15¾	56	57
'60	24	12	20⅝	23	11½	8	17¼	56	57
'61	22	10½	19½	20	10	7	15	54	55
'62	22	10½	20½	21	9¼	6½	14½	47	48
'63	22	10¾	22⅝	21	8	5¾	14½	43	45
'64	23	11¼	27⅜	22	7¾	5¾	14	41	43
'65	22½	10¾	25¾	27	7¼	5½	14	44	46
'66	23½	11¾	23½	28	7	5½	14½	45	47
1867	21½	10	18⅞	27	7	5½	14	44	45
'68	20	8⅝	17½	25	7¾	6	14½	46	47
'69	17	7½	18⅛	26	8	5½	14½	46	47
'70	17	7⅝	16¾	28	8¼	5¾	14½	44	45
'71	21	10½	21⅜	27	9	6½	15	45	46
'72	26	12⅝	25⅝	26	10½	7½	17½	48	45
'73	25	11¾	24½	21¾	11	8¼	18¼	43	44
'74	23½	11½	20¾	17	10½	8	17½	42	41
'75	22	10⅝	19¾	15¾	9¼	8	17¼	46	46
'76	20¼	9⅛	17⅜	21	7½	7	16¾	47	44
'77	20¼	9⅜	16¼	20	8½	7¾	16	43	42
1878	20	9⅛	15	16½	8½	6¾	14¾	38	38
'79	18¾	8½	12½	16	8	6¾	14½	38	36
'80	21½	10⅝	15⅛	15	9¼	7½	15½	41	36
'81	19½	9¼	12⅜	15¾	9	7	15¼	42	38
'82	19¾	9	11¼	15¾	9	7	15	52	44
'83	19	8½	10	15¾	9	7	15	50	43
'84	18¼	8⅛	10	14½	9	7	15	47	37½
'85	16½	6¾	9⅞	12¾	8¾	6½	15	38	30½

* See special remarks.

Commodities—Contd.

38	39	40A	40B	41	42	43	44	45A	45B
	Oil.		Seeds.	Petroleum.	Soda.	Nitrate.	Indigo.	Timber.	
Palm.	Olive.	Linseed.	Linseed.	Refined.	Crystals.	Of Soda.	Bengal, Good Consuming.	Hewn, Average Import.	Sawn or Split, Average Import.
£ per ton.	£ per tun.	£ per ton.	*s.* per qr.	*d.* per gall.	*s.* per ton.	*s.* per cwt.	*s.* and *d.* per lb.	*s.* per load.	*s.* per load.
32	40	25	48	—	—	15½	3·10†	75†	—
36	47	26	49	—	—	14	3·1 †	75†	—
33	43	23	43	—	—	13	3·1 †	55†	—
32	41	27	42	—	—	12	3·7 †	60†	—
30	43	32	44	—	—	14½	5·4 †	55†	—
28	40	31	48	—	—	14¼	3·9 †	60†	—
29	48	28	46	—	—	14¾	4·11†	75†	—
37	64	30	49	—	—	18	4·10†	80†	—
48	55	36	62	—	—	17	4·8 †	87	74
44	54	40	68	—	—	17¼	5·4 †	84	72
42	52	36	60	—	—	17½	5·9 †	80	63
45	56	38	64	—	—	20½	6·6 †	70	55
39	46	31	54	—	—	17	6·6 †	65	48
45	49	29	51	—	—	16¼	6·6 †	69	57
46	58	29	55	—	—	14¾	6·6 †	74	62
45	57	31	59	—	—	13½	8·7 †	76	58
43	56	39	64	—	—	14	7·3 †	76	58
37	55	43	64	25 *	—	14½	6·3 †	72	57
34	57	36	64	25 *	—	15¾	5·10†	72	57
37	51	34	66	31 *	—	14¼	6·6 †	67	58
42	57	38	60	24 *	—	12½	6·10†	61	55
41	62	37	68	16 *	95 †	12	7·5 †	58	52
40	66	32	63	16½*	85 †	13½	8·4 †	61	51
41	52	30	61	20 *	75 †	15¾	8·7 †	65	51
39	51	31	61	19½*	87 †	16¼	8 †	65	52
38	49	33	62	17½*	115 †	16¼	9 †	56	46
39	48	34	63	17¾*	140 †	16	6·9 †	58	49
38	43	32	62	15¼	100 †	15½	6·8 †	65	62
36	42	27	59	10¼	85 †	12¼	7 †	64	65
36	43	24	54	10	75 †	12¼	5·9 †	57	56
38	46	24	51	14½	80 †	11½	6·7 †	58	56
40	49	28	54	12	72 †	14	5·6 †	56	58
38	49	26	49	9⅛	70	15	5·6	49	50
34	46	27	52	7⅜	68	15	6·3	42	43
32	41	27	54	7½	74	15½	7·3	49	52
32	38	26	50	7¼	65	14½	6·9	51	50
35	37	23	44	6	63	13¼	6·6	52	52
41	36	20	42	6½	66	11¼	6·3	52	48
36	40	20	43	6½	65	9½	6	48	46
30	39	22	44	6⅞	55	10½	5·3	48	45

† Prices at end of year, and not annual average.

APPENDIX C.

Index Numbers (or Percentages) of Prices.

No. of Article.	1	2	3	4	5	6	7	8	1—8
	Wheat.								
	English.	American.†	Flour.	Barley.	Oats.	Maize.	Potatoes.	Rice.	Vegetable Food. Total.
1846	100	100	111	84	91	120	107	135	848
'47	128	128	126	113	110	138	137	155	1,035
1848	93	93	100	81	79	98	103	87	734
'49	81	81	89	71	67	86	81	77	633
'50	74	74	80	60	63	86	73	85	595
'51	71	71	78	64	72	86	60	80	582
'52	75	75	85	73	73	89	77	90	637
'53	97	97	113	85	81	108	115	107	803
'54	133	133	141	92	107	132	103	122	963
'55	137	137	148	89	106	132	81	130	960
'56	127	127	135	105	97	108	73	100	872
'57	103	103	111	108	97	114	99	102	837
1858	81	81	87	89	94	101	85	75	693
'59	80	80	89	85	89	95	77	85	680
'60	98	98	104	94	94	108	94	102	792
'61	102	102	113	92	91	114	99	105	818
'62	102	102	102	90	87	95	103	105	786
'63	82	82	89	87	82	89	77	110	698
'64	74	74	83	77	77	89	64	95	633
'65	76	76	85	76	84	92	73	107	669
'66	91	91	98	96	94	98	73	120	761
1867	118	118	126	103	100	126	111	117	919
'68	117	117	117	110	108	120	107	110	906
'69	89	89	87	101	100	95	73	95	729
'70	86	86	89	89	88	92	77	95	702
'71	104	100	96	92	97	101	68	98	756
'72	105	105	102	96	89	89	120	100	806
'73	108	113	104	104	98	92	137	95	851
'74	102	102	102	115	111	117	90	100	839
'75	83	86	87	98	110	105	90	82	741
'76	85	86	89	90	101	82	115	90	738
'77	104	98	98	102	100	84	111	100	797
1878	85	86	83	103	94	77	132	100	760
'79	80	86	78	87	84	73	111	96	695
'80	81	91	85	85	89	79	111	91	712
'81	83	93	87	82	84	85	73	83	670
'82	83	87	87	80	84	95	81	74	671
'83	76	80	78	82	82	85	90	81	654
'84	65	65	65	79	78	78	64	77	571
'85	60	62	63	77	79	71	64	70	546

* The average prices of 1867-77 are given on p. 596.

APPENDIX C.

the Average of 1867-77 *being* 100.*

9	10	11	12	13	14	15	9—15	16	17
Beef.		Mutton.					Animal	Sugar.	
Prime.	Middling.	Prime.	Middling.	Pork.	Bacon.	Butter.	Food. Total.	West Indian and Beet.	Java.
68	68	84	87	100	77	82	566	143	116
76	80	87	91	104	97	81	616	117	98
69	74	84	85	100	92	78	582	87	74
64	64	70	69	83	78	70	498	96	84
61	60	68	67	79	66	66	467	100	88
63	60	70	69	77	69	70	478	100	91
63	62	70	69	73	73	70	480	87	81
76	78	86	85	87	85	80	577	96	91
85	86	86	85	94	91	82	609	87	88
85	88	84	84	92	92	85	610	104	102
81	82	84	84	96	96	92	615	122	116
81	84	86	84	100	95	93	623	148	144
80	82	81	80	85	80	94	582	104	116
81	82	84	85	90	80	92	594	100	109
85	84	89	91	104	92	90	635	104	112
83	84	87	91	104	95	90	634	96	102
78	78	84	87	100	88	90	605	87	98
80	82	86	87	92	85	86	598	92	95
85	88	87	93	94	88	87	622	113	112
90	92	102	105	106	93	93	681	96	95
90	94	97	100	104	99	90	674	92	91
88	90	87	91	87	84	93	620	94	98
85	86	81	85	87	89	101	614	95	98
93	92	92	93	106	103	92	671	103	105
95	96	92	95	108	100	99	685	99	105
102	106	100	107	98	85	104	702	109	109
100	104	106	111	96	97	95	709	111	105
110	112	113	114	104	109	98	760	101	98
105	102	98	96	104	108	107	720	97	93
109	110	113	107	110	108	101	758	90	88
105	104	114	105	113	109	108	758	94	91
104	98	109	98	98	101	102	710	106	105
104	98	108	100	96	100	98	704	88	88
93	90	102	95	92	97	86	655	86	84
98	98	105	98	106	103	100	708	89	89
95	96	109	104	104	103	98	709	92	93
102	102	114	109	98	100	100	725	87	89
104	102	116	111	94	97	98	722	84	86
98	98	102	96	92	95	96	677	56	62
88	88	89	85	87	92	89	618	59	62

† See special remarks.

Index Numbers (or Percentages) of Prices,

No. of Article.	18A	18B	18	19A	19B	19	16—19	1—19	20
	Coffee.			Tea.			Sugar, Coffee, and Tea. Total.	Food. Total.	Iron, Pig.
	Plantation.*	Rio.*	Total.	Congou.*	Import.*	Total.			
1846	60	50	55	82	76	79	393	1,807	97
'47	56	52	54	80	76	78	347	1,998	95
1848	46	45	46	69	71	70	277	1,593	59
'49	54	56	55	75	76	75	310	1,441	66
'50	64	75	69	98	88	93	350	1,412	64
'51	58	61	59	93	83	88	338	1,398	58
'52	58	64	61	73	71	72	301	1,418	65
'53	64	72	68	100	88	94	349	1,729	90
'54	63	78	70	100	90	95	340	1,912	115
'55	64	69	66	80	88	84	356	1,926	103
'56	67	72	69	82	85	83	390	1,877	105
'57	77	79	78	115	101	108	478	1,938	100
1858	72	67	70	100	96	98	388	1,663	79
'59	77	81	79	131	108	120	408	1,682	75
'60	78	94	86	144	108	126	428	1,855	78
'61	79	86	82	107	100	104	384	1,836	71
'62	93	94	93	120	112	116	394	1,785	78
'63	93	105	99	114	108	111	397	1,693	81
'64	88	105	96	98	106	102	423	1,678	83
'65	89	91	90	98	116	107	388	1,738	79
'66	91	79	85	104	112	108	376	1,811	88
1867	87	70	79	104	108	106	377	1,916	78
'68	82	61	72	124	112	118	383	1,903	77
'69	82	67	75	115	103	109	392	1,792	78
'70	74	70	72	107	100	104	380	1,767	79
'71	77	86	81	102	96	99	398	1,856	85
'72	91	111	101	102	98	100	417	1,932	148
'73	115	134	125	107	97	102	426	2,037	170
'74	129	131	130	102	99	101	421	1,980	127
'75	121	125	123	98	98	98	399	1,898	95
'76	121	116	118	84	96	90	393	1,889	85
'77	117	120	118	69	93	81	410	1,917	79
1878	116	97	106	69	89	79	361	1,825	70
'79	103	91	97	80	85	82	349	1,699	69
'80	100	95	97	78	78	78	353	1,773	79
'81	92	77	84	58	75	66	335	1,714	71
'82	75	61	68	45	73	59	303	1,699	71
'83	87	67	77	49	72	60	307	1,683	69
'84	91	74	73	56	68	62	253	1,501	61
'85	69	61	65	58	70	64	250	1,414	60

* Figures not included

the Average of 1867-77 *being* 100—*Contd.*

21	22	23	24	25	26	20—26	27	28	29	30
				Coals.			Cotton.			
Iron, Bars.	Copper.	Tin.	Lead.	London.	Export.	Minerals. Total.	Uplands.	Dhollerah.	Flax.	Hemp.
115	111	86	93	82	61	645	54	52	104	91
118	119	83	91	93	62	661	68	67	106	99
85	104	74	83	82	62	549	46	48	81	86
76	103	73	77	80	62	537	57	57	77	78
71	104	74	87	77	62	539	78	78	87	81
67	104	78	84	73	60	524	61	63	96	94
76	119	81	87	75	60	563	59	63	98	85
112	141	108	117	100	65	733	64	61	100	104
121	153	111	117	107	79	803	60	54	119	145
103	153	110	115	100	79	763	63	59	106	118
108	144	127	122	84	77	767	70	70	92	101
100	151	128	118	84	76	757	86	82	75	85
85	131	112	109	82	75	673	76	82	96	73
82	131	128	110	84	75	685	75	74	108	69
79	127	125	108	93	72	682	69	74	104	69
73	119	113	100	91	73	640	95	93	100	69
76	116	111	101	82	72	636	192	191	117	79
85	115	114	101	82	72	650	258	285	112	86
100	119	99	102	91	76	670	306	318	110	87
94	111	85	98	91	77	635	211	215	108	81
88	108	78	100	89	82	633	172	178	115	103
82	95	83	96	91	83	608	121	129	102	110
77	93	90	94	84	80	595	117	126	107	112
82	92	120	94	84	77	627	135	144	105	108
89	87	119	90	84	77	625	110	120	102	113
92	92	128	89	87	79	652	95	86	92	105
133	124	139	99	116	127	886	117	111	103	108
152	112	126	117	145	167	989	100	92	97	101
124	105	93	109	114	138	810	89	79	92	92
101	109	80	110	109	106	710	82	74	100	85
88	101	70	107	95	87	633	69	67	100	86
82	91	65	100	91	81	589	70	77	94	81
68	83	58	81	82	76	518	66	73	84	69
70	77	69	74	82	70	511	70	74	73	67
82	84	84	80	70	72	551	77	78	79	68
70	83	89	74	77	72	536	71	65	70	86
76	88	97	71	77	73	553	74	64	64	90
70	84	89	63	82	75	532	64	58	65	92
62	72	77	55	75	74	476	67	59	64	86
59	57	83	57	75	72	463	62	63	73	82

in the general average.

Index Numbers (or Percentages) of Prices,

No. of Article.	31	32	33	34	27—34	35	36	37	38	39
		Wool.							Oil.	
	Jute.	Merino.	English.	Silk.	Textiles. Total.	Hides.	Leather.	Tallow.	Palm.	Olive.
1846	95	85	66	70	617	72	69	98	80	80
'47	90	75	61	61	627	65	66	107	92	94
1848	79	59	56	56	511	53	61	104	85	86
'49	79	73	51	65	537	51	59	87	82	82
'50	84	79	56	83	626	53	59	82	77	86
'51	68	79	63	78	602	64	62	84	72	80
'52	84	92	68	78	627	61	59	87	74	96
'53	116	95	81	78	699	71	77	116	95	128
'54	95	86	78	69	706	82	84	145	123	110
'55	100	92	66	69	673	92	84	128	113	108
'56	95	109	81	96	714	117	91	119	108	104
'57	90	111	104	104	737	135	120	130	115	112
1858	84	108	69	83	671	111	94	118	100	92
'59	84	112	94	91	707	120	98	126	115	98
'60	84	116	102	100	718	121	108	126	118	116
'61	92	104	99	87	739	106	94	121	115	114
'62	110	104	104	91	988	98	91	106	110	112
'63	142	105	114	91	1,193	86	91	98	95	110
'64	134	110	139	96	1,300	84	88	93	87	114
'65	103	107	130	117	1,072	80	88	100	95	102
'66	116	113	119	122	1,038	79	91	102	108	114
1867	103	101	95	117	878	79	88	99	105	124
'68	101	92	88	109	852	87	91	103	103	132
'69	100	79	92	113	876	84	91	103	105	104
'70	117	79	85	122	848	87	91	99	100	102
'71	124	100	108	117	827	96	94	101	97	98
'72	108	124	130	113	914	112	109	103	100	96
'73	95	118	124	95	822	120	114	97	97	86
'74	95	113	105	74	739	115	109	92	92	84
'75	87	105	100	68	701	109	108	102	92	86
'76	87	94	88	91	682	93	105	101	97	92
'77	92	94	82	87	677	101	100	94	103	98
1878	90	93	76	72	623	94	92	84	97	98
'79	87	88	63	69	591	92	91	82	87	92
'80	99	103	77	65	646	105	97	86	82	82
'81	98	92	63	68	613	100	95	89	82	76
'82	79	92	57	68	588	100	94	107	90	74
'83	75	89	51	68	562	100	94	103	105	72
'84	71	85	51	63	546	100	94	94	92	80
'85	63	73	50	55	521	95	94	76	77	78

* See special

the Average of 1867-77 *being* 100—*Contd.*

40 Linseed Oil and Seeds.	41 Petroleum.*	42 Soda, Crystals.	43 Nitrate of Soda.	44 Indigo.	45 Timber.	35—45 Sundry Materials. Total.	20—45 Materials. Total.	1—45 Grand Total.	Number of Articles each Year.
82	—	—	111	53	125	770	2,032	3,839	43
84	—	—	100	42	125	775	2,063	4,061	,,
75	—	—	93	42	92	691	1,751	3,344	,,
80	—	—	86	49	100	676	1,750	3,191	,,
90	—	—	104	73	92	716	1,881	3,293	,,
92	—	—	102	52	100	708	1,834	3,232	,,
85	—	—	105	68	125	760	1,950	3,368	,,
91	—	—	129	67	133	907	2,339	4,068	,,
112	—	—	121	64	142	983	2,492	4,404	,,
123	—	—	123	73	136	980	2,416	4,342	,,
110	—	—	125	79	125	978	2,459	4,336	,,
117	—	—	146	90	109	1,074	2,568	4,506	,,
97	—	—	121	90	98	921	2,265	3,928	,,
91	—	—	116	90	110	964	2,356	4,038	,,
95	—	—	105	90	119	998	2,398	4,253	,,
101	—	—	96	119	117	983	2,362	4,198	,,
118	—	—	100	100	117	952	2,576	4,361	,,
125	—	—	104	86	113	908	2,751	4,444	,,
114	—	—	112	80	113	885	2,855	4,533	,,
112	—	—	102	90	109	878	2,585	4,323	,,
114	—	—	89	94	101	892	2,563	4,374	,,
118	—	103	86	102	96	1,000	2,486	4,402	44
106	—	92	96	115	97	1,022	2,469	4,372	,,
101	—	82	112	119	101	1,002	2,505	4,297	,,
103	—	85	116	110	102	995	2,468	4,235	,,
107	—	125	116	124	89	1,047	2,526	4,382	,,
109	—	152	114	93	94	1,082	2,882	4,814	,,
105	122	109	110	92	111	1,163	2,974	5,011	45
94	82	92	88	97	113	1,058	2,607	4,587	,,
85	80	82	88	79	99	1,010	2,421	4,319	,,
82	116	87	82	91	100	1,046	2,361	4,250	,,
92	96	78	100	75	100	1,037	2,303	4,220	,,
85	73	76	107	76	87	969	2,110	3,935	,,
89	59	74	107	86	75	934	2,036	3,735	,,
90	60	80	111	100	89	982	2,179	3,952	,,
85	58	71	104	93	89	942	2,091	3,805	,,
75	48	69	95	90	91	933	2,074	3,773	,,
68	52	72	80	86	88	920	2,014	3,697	,,
69	52	71	68	83	82	885	1,907	3,408	,,
73	55	60	75	72	81	836	1,820	3,234	,,

remarks.

APPENDIX D.

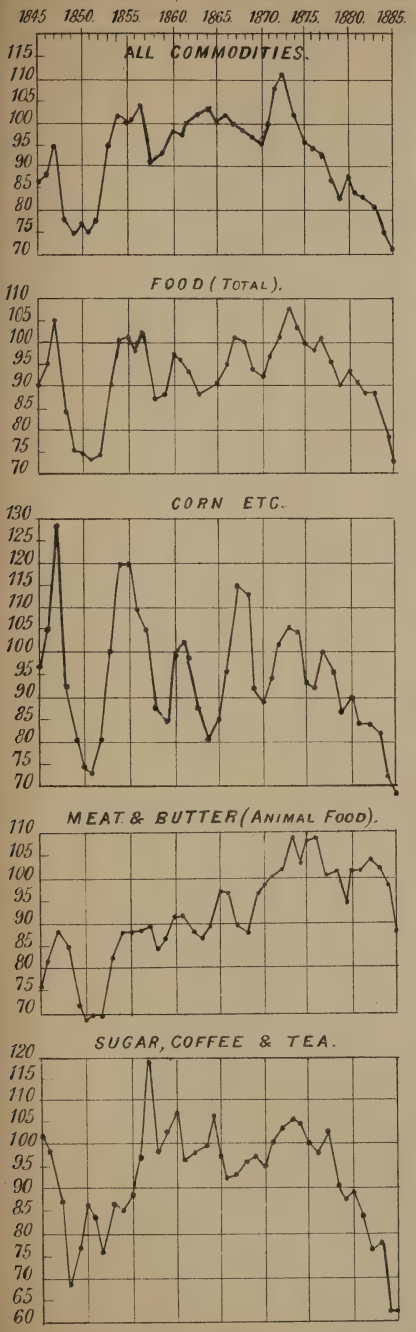
Summary of Index Numbers. Groups of Articles, 1867-77 = 100.

	Vegetable Food (Corn, &c.).	Animal Food (Meat, &c.).	Sugar, Coffee, and Tea.	Total Food.	Minerals.	Textiles.	Sundry Materials.	Total Materials.	Grand Total.	Silver.*	English Wheat Harvest.*	Average Price of Consols.*	Average Bank of England Rate.*
1846	106	81	98	95	92	77	86	85	89	97·5	deficient	95¾	3¼
'47	129	88	87	105	94	78	86	86	95	98·1	above average	87¼	5¼
1848	92	83	69	84	78	64	77	73	78	97·8	very deficient	85½	3¾
'49	79	71	77	76	77	67	75	73	74	98·2	123	92½	3
'50	74	67	87	75	77	78	80	78	77	98·7	102	96½	2½
'51	73	68	84	74	75	75	79	76	75	99·9	110	97⅛	3
'52	80	69	75	75	80	78	84	81	78	99·9	79	99⅜	2
'53	100	82	87	91	105	87	101	97	95	101·2	71	97¾	3½
'54	120	87	85	101	115	88	109	104	102	101·1	127	91⅞	5
'55	120	87	89	101	109	84	109	101	101	100·7	96	90½	4¾
'56	109	88	97	99	110	89	109	102	101	101·0	96	93⅛	5¾
'57	105	89	119	102	108	92	119	107	105	101·5	124	91⅜	6¾
1858	87	83	97	88	96	84	102	94	91	101·0	116	96⅞	3¼
'59	85	85	102	89	98	88	107	98	94	102·0	92	95⅛	2¾
'60	99	91	107	98	97	90	111	100	99	101·4	78	94	4¼
'61	102	91	96	97	91	92	109	99	98	99·9	92	91½	5¼
'62	98	86	98	94	91	123	106	107	101	100·9	108	93	2½
'63	87	85	99	89	93	149	101	115	103	101·1	141	92⅝	4½
'64	79	89	106	88	96	162	98	119	105	100·9	127	90⅜	7½
'65	84	97	97	91	91	134	97	108	101	100·3	110	89½	4¾
'66	95	96	94	95	91	130	99	107	102	100·5	90	88	7
1867	115	89	94	101	87	110	100	100	100	99·7	74	93	2½
'68	113	88	96	100	85	106	102	99	99	99·6	126	93⅞	2¼
'69	91	96	98	94	89	109	100	100	98	99·6	102	92⅞	3¼
'70	88	98	95	93	89	106	99	99	96	99·6	112	92½	3⅛
'71	94	100	100	98	93	103	105	101	100	99·7	90	92¾	2⅞
'72	101	101	104	102	127	114	108	115	109	99·2	92	92½	4⅛
'73	106	109	106	107	141	103	106	114	111	97·4	80	92½	4¾
'74	105	103	105	104	116	92	96	100	102	95·8	106	92¼	3¾
'75	93	108	100	100	101	88	92	93	96	93·3	78	93¾	3¼
'76	92	108	98	99	90	85	95	91	95	86·7	96	95	2⅝
'77	100	101	103	101	84	85	94	89	94	90·2	74	95⅜	2⅞
1878	95	101	90	96	74	78	88	81	87	86·4	108	95 3/16	3¾
'79	87	94	87	90	73	74	85	78	83	84·2	64	97½	2⅜
'80	89	101	88	94	79	81	89	84	88	85·9	93	98⅜	2¾
'81	84	101	84	91	77	77	86	80	85	85·0	97	100	3½
'82	84	104	76	89	79	73	85	80	84	84·9	100	100½	4⅛
'83	82	103	77	89	76	70	84	77	82	83·1	93	101 3/16	3 9/16
'84	71	97	63	79	68	68	81	73	76	83·3	107	101	3
'85	68	88	63	74	66	65	76	70	72	79·9	111	99¼	2 9/10

* See special remarks.

COURSE OF AVERAGE PRICES OF GROUPS OF ARTICLES.

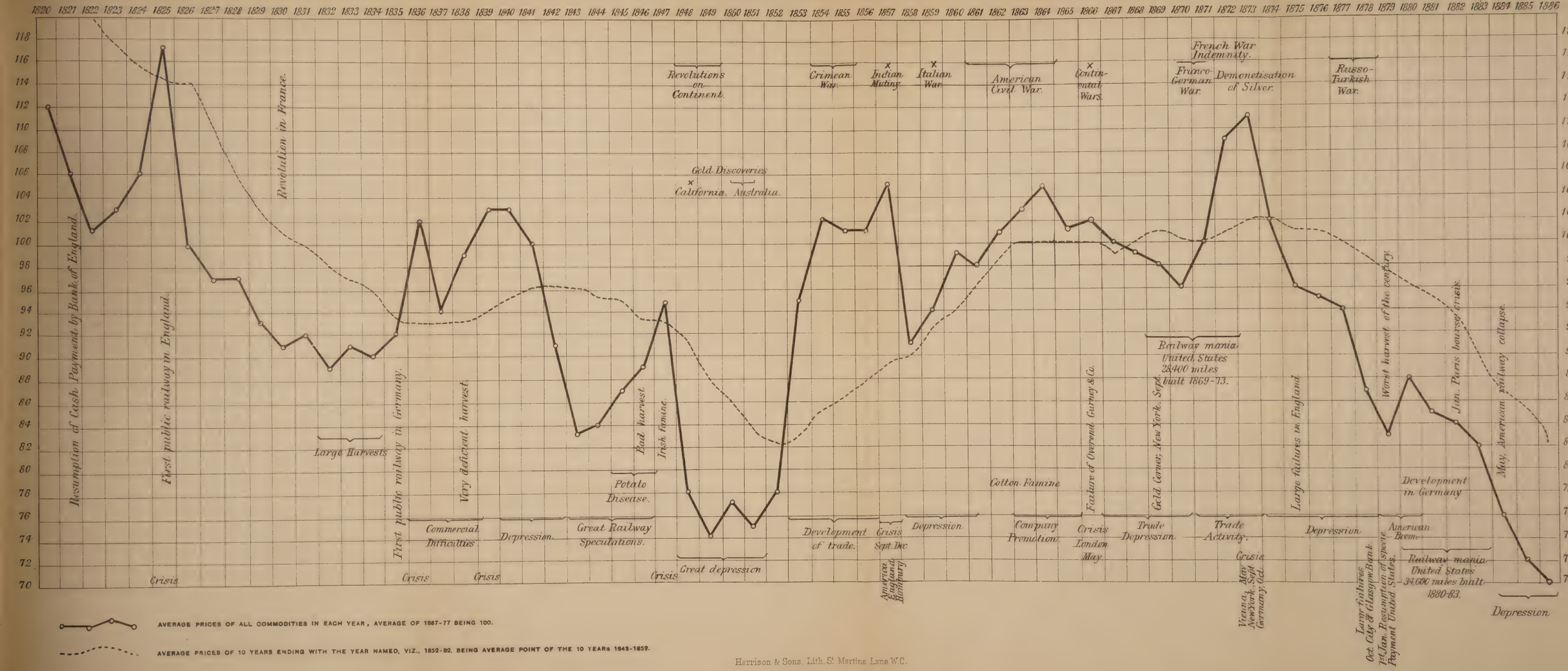
THE AVERAGE OF 1867-77 BEING 100.



Harrison & Sons Lith. St Martins Lane W.C.

COURSE OF AVERAGE PRICES OF GENERAL COMMODITIES IN ENGLAND.

(AVERAGE OF 1867-1877 BEING 100.)


1820 1821 1822 1823 1824 1825 1826 1827 1828 1829 1830 1831 1832 1833 1834 1835 1836 1837 1838 1839 1840 1841 1842 1843 1844 1845 1846 1847 1848 1849 1850 1851 1852 1853 1854 1855 1856 1857 1858 1859 1860 1861 1862 1863 1864 1865 1866 1867 1868 1869 1870 1871 1872 1873 1874 1875 1876 1877 1878 1879 1880 1881 1882 1883 1884 1885 1886
118 116 114 112 110 108 106 104 102 100 98 96 94 92 90 88 86 84 82 80 78 76 74 72 70
Resumption of Cash Payment by Bank of England.
First public railway in England.
Revolution in France.
Large Harvests.
First public railway in Germany.
Very deficient harvest.
Gold Discoveries
California. Australia.
Bad harvest.
Irish famine.
Revolutions on Continent.
Crimean War.
Indian Mutiny.
Italian War.
American Civil War.
Continental Wars.
French War Indemnity.
Franco-German War.
Demonetisation of Silver.
Russo-Turkish War.
Railway mania United States 28,400 miles built 1869-73.
Worst harvest of the century.
Jan. Paris bourse crash.
May. American railway collapse.
Potato Disease.
Cotton Famine
Failure of Overend, Gurney & Co.
Gold Corner; New York. Sept.
Large failures in England
Commercial Difficulties
Depression.
Great Railway Speculations.
Development of trade.
Crisis Sept. Dec.
Depression.
Company Promotion.
Crisis London May.
Trade Depression.
Trade Activity.
Depression
Development in Germany
American Boom.
Railway mania United States 34,600 miles built 1880-83.
Depression
Crisis.
Crisis
Crisis
Crisis
Great depression
America. England. Hamburg
Vienna. May. New York. Sept. Germany. Oct.
Crisis
Large Failures Oct. City of Glasgow Bank. 1st Jan. Resumption of specie Payment United States.

AVERAGE PRICES OF ALL COMMODITIES IN EACH YEAR, AVERAGE OF 1867-77 BEING 100.

AVERAGE PRICES OF 10 YEARS ENDING WITH THE YEAR NAMED, VIZ., 1852-82, BEING AVERAGE POINT OF THE 10 YEARS 1843-1852.

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MISCELLANEA.

CONTENTS:

	PAGE
I.—The Mathematical Method of Statistics. By F. Y. Edgeworth, Esq., M.A.	649
II.—On a Calculating Instrument called a Universal Proportion Table	655
III.—Lloyd's Statistics of Marine Casualties for the Year 1885	657
IV.—Statistical Review of the Present Position of Italy. By M. Toussaint Loua. (A translation)	662
V.—Notes on Economical and Statistical Works	672
VI.—Quarterly List of Additions to the Library	678

I.—*The Mathematical Method of Statistics.*

By F. Y. Edgeworth, Esq., M.A.

The Editor has received the following communication from Mr. Edgeworth:—

May I call the attention of your readers to two papers which I have recently contributed to the *London Philosophical Magazine*. They may be regarded as supplementary to the mathematical method of statistics which I have endeavoured to expound in former numbers of your *Journal*.

I. The object of the first paper * is to remove a certain scruple which in some extreme cases attaches to that method. It will be recollected that the problems to which the method is applied are of the following type.† A certain number of total abstainers, taken at random from the general population, present a longer mean life than the general population. What is the probability that this discrepancy is not accidental, but significant of a real connection between longevity and total abstinence from liquor. The sought probability is expressed approximately in terms of a certain constant, called the modulus. The approximation becomes less exact as the *écart* or observed difference—in the case before us between the general population and the abstinent part of it—is greater. When that discrepancy is very considerable, a doubt arises how far the numerical value assigned by the theory may be relied on. I have endeavoured to clear up this doubt.

For the purpose of the investigation the problems to which the theory is applicable are divided into two classes. The first class is exemplified by returns of the ratio between male and total births: that ratio being nearly $\frac{1}{2}$. The second class is exemplified by death-rates,‡ especially death-rates for certain age-periods

* *Phil. Mag.*, April, 1886.

† See my paper, "The Rate of Births, Deaths, and Marriages," *Journal of the Statistical Society*, 1885.

‡ Assuming that, as may be gathered from my paper "On the Rate of Births, &c.," it is safe to assume (with respect to age-periods at least) that the fluctuation of death-rates follows the analogy of games of chance. I mean that if

(*e.g.*, 25—35) : the ratio between the number of deaths and the total population being small, from 0·02 to 0·01. (α). In the first case the general method is apt to be accurate even though the *écart* or observed difference between the compared averages is very great. Moreover, even if the calculation ceases to be accurate, it still is safe in this sense that it *underrates* the evidence of the *demonstrandum*, the probability that the observed discrepancy is due to cause rather than to chance. Take some of the statistics cited by Sir Rawson Rawson in his able address at the opening of this session. It is there stated that the proportion of male to female births in Greece* is upon an average of eighteen years 112 : 100. The population of Greece being in 1876 about 1,460,000, and the average birth-rate for the period under consideration (1865-82) being 28·4 per 1,000 ; it follows that the figure 112 is based upon the observation of about 800,000 births. The *modulus* for this number of births is therefore about the same as for all England (for a single year)† say (per 100 females) 0·4, or to be on the safe side 0·5. Now the observed excess of Greece over central Europe (112 *minus* 105) is 7. It follows according to the general method that the probability of there being a cause other than chance at the bottom of the observed phenomenon, is represented by a fraction which consists of about fifty *nines* following a decimal point. And the supplementary theory which is the subject of this note shows that this calculation is either accurate or errs on the safe side, underrating the evidence of law. This deduction is confirmed by the returns for the individual years, in each of which the sex-ratio for Greece exceeds the average for central Europe.‡ But the reader will remark that, if we had had only the abstract given by Sir Rawson Rawson's Table II, we might still, without analysing the total into its component parts, have been practically certain that the preponderance of Greece was not§ accidental.

As another example, let us take the returns of the proportion between male and female births in Connecticut for the four years 1879-82. According to the *Confronti Internazionali* the figures

you took several batches of 1,000 persons of the same period of life, *e.g.*, 25—35, from a homogeneous population at the same time and under the same local conditions, and registered the number of deaths in each batch per year, these numbers would fluctuate very much as the numbers of black balls obtained by drawing at random 10 balls from each of a set of urns, each set containing 10 black and 990 white balls.

* The following discussion illustrates the remarks which I have made in my paper on the "Methods of Statistics," Statistical Society's *Jubilee Volume*, p. 214, concerning the efficacy of the mathematical method.

† Ibid.

‡ *Confronti Internazionali.*

§ Accident as here understood must be taken to exclude deliberate misrepresentation, or even gross negligence. Suppose, *e.g.*, the real average for the eighteen-year period had been 102, and a copyist had put 112 by mistake. This is a species of error against which the mathematical method *per se* (I mean Method A as distinguished from B_2) is comparatively defenceless; and with respect to which it may be admitted that the humbler method (examining a great number of batches) has some advantage. This remark does not apply to the joint Method B_2 ("Methods of Statistics," *Jubilee Volume*, p. 214).

are 109, 112, 112, 106. The mean population of Connecticut being about 625,000, we have, according to the principles explained in my *Methods of Statistics*,* for the *modulus* of the sex-ratio founded on that number about $\frac{38}{\sqrt{3}}$ per 1,000 females; or 2·2 per 100 females. Accordingly the series of returns 109, 112, 112, 106, &c., present excesses over the European mean-ratio (105) amounting respectively to about twice, thrice, thrice, and a half, the modulus. The probabilities that these excesses should have occurred by mere accident are found by the usual tables to be respectively 0·005, 0·00001, 0·00001, 0·5. Multiplying together these fractions (as recommended under the heading B (2) of the *Methods of Statistics*),† we have 0·000,000,000,000,002,5, as the probability that the whole chain of evidence might have resulted from mere chance. Accordingly in proof that Connecticut is specially favourable to male births we have the probability 0·999,999,999,999,993; which amounts to certainty. And the supplementary theory shows that this estimate, if not accurate, is *below* the mark. It may be remarked that from the same data the ordinary method would not have extracted a higher degree of evidence than $\frac{1}{6}$.

(β). The method of the modulus must be applied with more caution to statistics of the second class. In this case the normal formula cannot be strained so far. The approximation breaks down earlier, and moreover, when it ceases to be accurate, it often ceases to be safe. The extent of this imperfection cannot be in general defined precisely. But with respect to death-rates,‡ and probably most of the practical problems of statistics, it seems safe to say that the theoretical imperfection of our method is not of practical moment. The exaggeration of evidence is inconsiderable; or rather the exaggeration is only considerable when the evidence is already so high that it does not much matter what figures are employed to represent it. For example, evidence of the order 400 : 1 would not be likely to be much exaggerated. It might appear to be 450 : 1. But evidence which was really 10,000 : 1 might well appear to be 100,000 : 1. Good instances of the case under consideration are afforded by the registrar-general's recently published supplement. Let us take the mortality in different occupations at the age period 25—45. The modulus for that period is somewhat larger than for the period 25—35; as I have ascertained by calculations similar to those which I have given for§ the latter period. We shall be on the safe side if, where we put 50 as the *fluctuation* for the death-rate per 10,000 at the period 25—35, we put 80 for the period 25—45. Now the population upon which the registrar-general's returns for the period 25—45 are based is about 42,000 (sometimes more as in the case of the shoemakers, often less as in

* P. 198.

† P. 214.

‡ Upon the analogy of games of chance. For a discussion of some interesting problems of this species, the reader is referred to the *Journal of Psychical Research*, part 10.

§ *Journal of the Statistical Society*, December, 1885.

the case of the hatters). But the figure 80 just found related to a population* of about 30,000. Hence the fluctuation for the population contemplated by the registrar-general is about $\frac{30}{42} \times 80$, or about 60. The square root of this fluctuation, 7 or 8, is the modulus for the rate-of-mortality-per-10,000. Hence the modulus for the rate-per-1,000, the rate employed in the registrar-general's calculations, is 0·7 or 0·8. We are now in a position to answer the question: What is that difference between the mortality in a single occupation and the mortality for all occupied males which may be regarded as significant, not accidental? It is at least twice the modulus, say 1·5. And according to the supplementary theory, when the demonstrandum is the special *un*healthiness of an occupation, a slightly larger excess is required. It will be found, I think, that most, if not all, the returns upon which the registrar-general grounds conclusions will sustain this test. The indications of difference contained in his table are for the most part significant *per se*, and abstracted from the additional evidence† which *à priori* evidence or mutual‡ concatenation may afford.

The comparative unhealthiness of different occupations is another subject which may come within the danger of the supplementary theory; especially in the case of the less prevalent diseases. I should be disposed to question the observation that the farmer "suffers from a higher mortality under gout;" the proportion of deaths from gout to deaths from all causes being in the two occupations respectively $\frac{2}{1000}$ and $\frac{1}{1000}$.§

The comparative liability of different occupations to a particular malady can be ascertained more precisely when (as in the case of phthisis) the proportion which that malady contributes to the total number of death is considerable. Indeed, the subject appears particularly amenable to the mathematical method. On the one hand, a conclusion concerning the unhealthiness of a certain class must often be based upon an undecomposed average mortality for that class. On the other hand, the statistics of all occupations are likely to afford abundant material for the calculation of the requisite *moduli*. Even without performing that operation we can make some use of the method. The registrar-general fixing 500 as the minimum number of deaths from which conclusions can be safely drawn, observes,‖ "the first question in regard to the sample is how large it should be. To this question no more definite answer can be given than that the larger the sample the better." The theory of Errors can give a more definite answer: namely, that the number of observations should be sufficiently large

* *Journal of the Statistical Society*, December, 1885.

† As Mill points out, observations which *per se* would contribute very slight evidence, when consilient with *à priori* deductions, confer weight.

‡ Such as the circumstance noticed by the registrar-general that there is a decrease of mortality at the age 25—35 in *several* occupations.

§ It is to be remarked, however, that the registrar-general not only asserts a fact, but also assigns a reason, describing the farmer as "less abstemious than the labourer." The inference may therefore be justified upon the principle of the last note but one.

‖ Supplement to Forty-Fifth Report, p. xxviii.

for the *modulus* to be sufficiently small. And the *modulus* is sufficiently small in general when it is less than half the observed difference upon which the argument is based.* In the absence of this theory, it is inevitable that evidence should appear to be stronger the larger the number of observations on which it rests. And of course it is so, other things being the same. But it is a very delicate question whether in any given case the "other things" are the same. Thus it is asserted† without reserve or hesitation about the butchers—a class for which we have an unusually large number of observations, that "the mortality of butchers from phthisis as given in the table is high, 261 as against 220 for all males;" while the hatters and hairdressers, not having the regulation number of observations, are relegated to the category of precarious inference. Yet, whatever the modulus for the proportion of deaths from a particular disease—and I cannot pronounce upon this constant without an extensive palpation of statistics which have not been published—it is reasonably certain that far more cogent evidence of liability to phthisis is afforded by the 371 hairdressers than by the 1,125 butchers. The excess over the general mean is for the hairdressers 144, for the butchers only 41. Whereas the modulus for the hairdressers (whatever it may be absolutely) is proportional to that of the butchers as $\sqrt{1115} : \sqrt{371}$, say as $1{\cdot}7 : 1$. The *écart* of the hairdressers‡ is therefore to the corresponding *écart* of the butchers as $\frac{144}{1{\cdot}4} : 41$, that is about $2 : 1$. Unless therefore the subject matter be very exceptional, unless that constancy which I have shown to be an attribute of moduli in general break down here, it cannot well be that the evidence of the butchers is trustworthy, while that of the hairdressers is to be rejected.

II. The second of the papers§ which I have undertaken to describe is designed to facilitate the calculation of that constant to which I have so often referred as the modulus. Taking as a paradigm the problem above instanced—to discover whether the mean life of a certain class compared with that of the general population, or some large section thereof, indicates peculiar unhealthiness, we may thus describe the general rule for finding the required modulus. From the life tables which are supposed given, calculate the mean age at death of the section under consideration—in the proposed example English males who have attained the age of 65. The mean is found to be 75·8, say in round numbers 76. Now we are given the number of deaths which occur between the beginning and end of each year, *e.g.*, between 65 and 66, between 66 and 67. And we assume for the purpose of calculation that the deaths of each year instead of being distributed over the twelve months, occur at the points of time designated as 66, 67, &c. Take the difference

* In the case of the more prevalent maladies. In cases like gout the argument must be taken *cum grano*.

† Supplement to the registrar-general's Forty-Fifth Report.

‡ As measured by *their* modulus.

§ *Phil. Mag.*, June, 1886.

between each of these ages and the (approximate) mean age: namely, 1, 2, 3, &c.; square each of these differences, and multiply each square by the corresponding entry in the given column. Thus for the ages 74 the entry is 7,639, and the difference squared $(76—74)^2$ is 4. Hence the product is approximately 30,500. Add all these products together and divide the sum by the total number of deaths observed (the total number alive at the initial epoch). Double this quotient is the fluctuation* or square of the sought modulus constant. I make it 90.

Now this operation presents many difficulties. In the first place it is very troublesome when the number of entries, of years of life, is considerable. Again, it may be doubted how far it is legitimate to treat a phenomenon as discrete when it is really continuous, to regard all the deaths of each year as huddled together at one point of time. The doubt becomes more serious if we are given, not a perfect column d_x, but only the deaths for each quinquennium, as occurs for instance in many of Mr. Neison's Vital Statistics. Thirdly, the substitution in the place of the real mean of a convenient proximate value may give us pause. And it is questionable whether it would not have been better to take 75·5 as the mean, and as the series of discrete points . . . 73·5, 74·5, 75·5, 76·5, 77·5 . . . . . .

The first of these difficulties can always be diminished by increasing the second. If it is too troublesome to sum the squares of so many differences, we may lump together each three, or five, consecutive entries of column d_x; and then proceed as if this coagulated material constituted our original datum. There remain then only the second and third difficulties. The weight of these differs in different cases. It is apt to be slight in the very general case of symmetrical statistics; such as occur, *e.g.*, in anthropometry. When the curve which represents our materials is lopsided and truncated, as in the problem under consideration,† more caution is required. It is rather difficult to subsume a variety of simplifying dodges into rules which can be put in practice without a knowledge of their reason. It will be better for the practitioner to apprehend the reasons, especially as they are not of an abstruse character. Speaking generally, we may say that it is not very easy to go wrong. Almost any simplification of the operation above described is likely to give a value for the modulus sufficiently accurate for the practical purpose of statistical induction.

* See "Methods of Statistics," *Jubilee Volume*, p. 190; "The Rate of Births, &c.," *Journal of the Statistical Society*, December, 1885.

† Taking for points on an abscissa the years of age 65·5 to 100·5, and for ordinates the corresponding entries in column d_x.

II.—*On a Calculating Instrument called a Universal Proportion Table.*

Professor J. D. Everett, Queen's College, Belfast, sends us the following communication with reference to a universal proportion table which he has constructed:—

I was led to construct this table from having often felt the want of some means of rapidly converting a list of numbers into others standing to them in a given arbitrary ratio. A "traverse table" such as is given in books on navigation would answer the purpose if every ratio were equal to the sine of a whole number of degrees, and I often found it convenient to use such a table, selecting the sine that came nearest to the required ratio. This plan I found preferable to the use of an ordinary slide-rule; for such rules are trying to the eyes if used for any length of time, and involve a much greater liability to mistake, as well as a much greater effort of attention.

Some specimens of the circular slide-rule answer the purpose tolerably well. One of the best of them is that known as "Fuller's Computing Telegraph," in which a disk of cardboard rotates within a circular opening of the same size in a larger piece of cardboard, both circles being graduated after the manner of an ordinary slide-rule, but the scale being much larger, and the values of most of the divisions being printed in figures. But the circular form is not convenient for reading off at various points of the circumference when the instrument lies in a fixed position, and it generally turns either too stiffly or with dangerous looseness.

My instrument was devised as an improvement on the circular slide-rule. It has numbers and divisions, on the plan of a slide-rule; but instead of being arranged along a single horizontal line, as in the ordinary rule, or round the circumference of a circle, as in the form just described, they are arranged in a series of vertical columns, like the numbers in a traverse table. As there is no large empty space, like that in the centre of the circular rule, but the whole area is utilised, a much larger scale can be employed without unwieldiness.

In external appearance the instrument consists of two rectangular cards of the size of a folio page, one of which is intended to be laid on the top of the other. The under one is twice as high as it is broad, and the upper one twice as broad as it is high. Each of them is printed with numbers and divisions, which are arranged in ten columns on the tall card, and twenty on the wide one. Between the columns of the latter there are slits cut, as wide as the columns themselves, and through these slits the columns on the under card are seen. In other words, the upper card is like a gridiron which can be moved about over the lower card. The columns of the upper card (or bars of the gridiron) are graduated at their left hand edges, and the columns of the lower card at their right hand edges, so that divisions which are to work together are in immediate proximity. Between the columns of the lower

card there are blank spaces equal in width to the bars of the gridiron.

When one card is properly laid upon the other, the overlapping portion is a square containing ten bars of the gridiron and ten spaces. Running the eye down the bars in succession, it will be seen that the first bar ends with the same number with which the second begins, and so on to the tenth bar, which ends with the same number with which the first begins. The same is true of the ten spaces, and the numbers in the spaces have a constant ratio to the numbers contiguous to them on the bars.

There are divisions for all three-figure numbers, and for four-figure numbers up to 1,099. The distance between 1,099 and 1,100 is about $\frac{1}{32}$ of an inch.

As there would be some danger of setting the cards slightly awry if general appearance were alone depended on, a kind of vernier is provided which renders the smallest obliquity at once apparent.

Practically the one source of difficulty has been the elastic stretching of the cards under the heavy pressure of the printing roller, which causes the divisions to be too near together when the pressure has ceased. This would be of no consequence if both cards could be trusted to behave exactly alike; but as copper-plate presses are not large enough to admit the cards broadside on, both must be put through endwise, and thus the under card is apt to have its divisions rather closer than those of the upper one. I have had much trouble in testing the cards for this source of error and selecting pairs that fit. Sometimes it has been necessary to shrink the upper one by wetting and rapid drying. I have recently had a large batch printed which have turned out exceedingly well, and I have paired together as many as are likely to be wanted for some time to come.

A good idea of the arrangement of the numbers on the two cards will be obtained by observing the arrangement of the first nine letters of the alphabet in the subjoined diagram:

A	D	G	A	D	G
B	E	H	B	E	H
C	F	I	C	F	I

G	A	D
H	B	E
I	C	F
A	D	G
B	E	H
C	F	I

III.—*Lloyd's Statistics of Marine Casualties for* 1885.

1.—*A Table showing the Number of Vessels reported in "Lloyd's List" as "Foundered," "Stranded," &c., during the Year* 1885.

	First Quarter.				Second Quarter.			
	British.		Foreign.		British.		Foreign.	
	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.
(1) *Foundered*	28	13	22	5	20	6	21	8
(2) *Stranded*—								
Got off	171	185	113	82	120	137	112	42
Not got off	94	25	75	9	50	15	81	6
Subsequent fate not known	17	1	10	2	3	3	6	—
Total	282	211	198	93	173	155	199	48
(3) *Burnt or damaged by fire*—								
Entirely destroyed	3	2	6	3	3	1	10	1
Damaged only	5	22	5	9	8	10	2	3
Total	8	24	11	12	11	11	12	4
(4) Leaky*	39	7	52	3	11	3	34	2
(5) Dismasted	21	3	27	1	19	2	16	1
(6) Capture	—	—	—	—	—	—	—	—
(7) Piracy	—	—	—	—	—	—	—	—
(8) Other causes of damage†	87	65	65	13	53	23	51	3
(9) Missing	9	5	4	2	10	7	4	2
Total	156	80	148	19	93	35	105	8

	Third Quarter.				Fourth Quarter.			
	British.		Foreign.		British.		Foreign.	
	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.
(1) *Foundered*	16	7	23	8	16	14	28	3
(2) *Stranded*—								
Got off	122	159	120	39	157	172	160	95
Not got off	56	12	78	7	91	26	137	14
Subsequent fate not known	10	1	6	1	29	3	25	4
Total	188	172	204	47	277	201	322	113
(3) *Burnt or damaged by fire*—								
Entirely destroyed	4	1	2	1	5	2	4	1
Damaged only	4	9	10	3	10	9	6	10
Total	8	10	12	4	15	11	10	11
(4) Leaky*	13	1	32	—	13	1	31	—
(5) Dismasted	27	—	18	1	29	5	17	1
(6) Capture	—	—	—	—	—	—	—	—
(7) Piracy	—	—	—	—	—	—	—	—
(8) Other causes of damage†	39	18	39	4	40	21	38	13
(9) Missing	8	1	1	—	8	1	5	—
Total	87	20	90	5	90	28	91	14

* "Leaky," only those vessels are included which are reported with serious leaks.

† "Other causes of damage," includes only those vessels more seriously injured.

2.—*A Table showing the Number of Vessels reported in "Lloyd's List" as "Abandoned," &c., together with Results to Ship and Cargo, during the Year* 1885.

	First Quarter.				Second Quarter.			
	British.		Foreign.		British.		Foreign.	
	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.
(10) *Abandoned*—								
Recovered	3	—	6	—	1	—	4	—
Not recovered	14	1	18	1	17	—	22	—
Total	17	1	24	1	18	—	26	—
(11) *Injured by collision*—								
Sunk	28	10	12	10	23	2	13	3
Otherwise injured	148	135	57	39	94	75	73	18
Total	176	145	69	49	117	77	86	21
Results to ship—								
Total loss	173	49	149	25	120	29	147	21
Damaged	380	305	247	85	233	155	219	44
Raised after sinking	8	6	5	5	7	2	3	—
Not damaged, or results unknown	105	116	72	62	71	93	81	29
Total	666	476	473	177	431	279	450	94
Results to cargo—								
All lost	72	19	61	8	46	16	57	10
Part lost	17	12	6	10	23	20	22	6

	Third Quarter.				Fourth Quarter.			
	British.		Foreign.		British.		Foreign.	
	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.
(10) *Abandoned*—								
Recovered	2	—	2	—	—	1	7	—
Not recovered	10	—	25	1	12	1	22	—
Total	12	—	27	1	12	2	29	—
(11) *Injured by collision*—								
Sunk	19	5	16	5	27	9	12	3
Otherwise injured	102	96	80	29	147	135	74	34
Total	121	101	96	34	174	144	86	37
Results to ship—								
Total loss	110	24	153	20	159	50	220	18
Damaged	240	175	204	50	304	211	217	76
Raised after sinking	1	1	4	1	4	4	3	2
Not damaged, or results unknown	89	109	83	29	122	127	121	80
Total	440	309	444	100	589	392	561	176
Results to cargo—								
All lost	41	13	58	7	44	19	69	2
Part lost	12	16	14	5	14	13	31	9

3.—*A Table showing the Number of Vessels reported in "Lloyd's List" as Foundered, Stranded, &c., during the Year* 1885.

	First Half-Year.				Second Half-Year.				Annual Total.			
	British.		Foreign.		British.		Foreign.		British.		Foreign.	
	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.
Foundered	48	19	43	13	32	21	51	11	80	40	94	24
Stranded—												
Got off	291	322	225	124	279	331	280	134	570	653	505	258
Not got off	144	40	156	15	147	38	215	21	291	78	371	36
Subsequent fate not reported	20	4	16	2	39	4	31	5	59	8	47	7
Total	455	366	397	141	465	373	526	160	920	739	923	301
Burnt or damaged by fire—												
Entirely destroyed	6	3	16	4	9	3	6	2	15	6	22	6
Damaged only	13	32	7	12	14	18	16	13	27	50	23	25
Total	19	35	23	16	23	21	22	15	42	56	45	31
Leaky*	50	10	86	5	26	2	63	—	76	12	149	5
Dismasted	40	5	43	2	56	5	35	2	96	10	78	4
Capture	—	—	—	—	—	—	—	—	—	—	—	—
Piracy	—	—	—	—	—	—	—	—	—	—	—	—
Other causes of damage†	140	88	116	16	79	39	77	17	219	127	193	33
Missing	19	12	8	4	16	2	6	—	35	14	14	4
Total	249	115	253	27	177	48	181	19	426	163	434	46

* "Leaky," only those vessels are included which are reported with serious leaks.

† "Other causes of damage," includes only those vessels more seriously injured.

4.—*A Table showing the Number of Vessels reported in "Lloyd's List" as "Abandoned," &c. together with Results to Ship and Cargo, during the Year* 1885.

	First Half-Year.				Second Half-Year.				Annual Total.			
	British.		Foreign.		British.		Foreign.		British.		Foreign.	
	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.	Sail.	Steam.
Abandoned—												
Recovered	4	—	10	—	2	1	9	—	6	1	19	—
Not recovered	31	1	40	1	22	1	47	1	53	2	87	2
Total	35	1	50	1	24	2	56	1	59	3	106	2
Injured by collision—												
Sunk	51	12	25	13	46	14	28	8	97	26	53	21
Otherwise injured	242	210	130	57	249	231	154	63	491	441	284	120
Total	293	222	155	70	295	245	182	71	588	467	337	141
Results to ship—												
Total loss	293	78	296	46	269	74	373	38	562	152	669	84
Damaged.....	613	460	466	129	544	386	421	126	1,157	846	887	255
Raised after sinking	15	8	8	5	5	5	7	3	20	13	15	8
Not damaged, or results unknown	176	209	153	91	211	236	204	109	387	445	357	200
Total	1,097	755	923	271	1,029	701	1,005	276	2,126	1,456	1,928	547
Results to cargo—												
All lost	118	35	118	18	85	32	127	9	203	67	245	27
Part lost	40	32	28	16	26	29	45	14	66	61	73	30

		Sailing.	Steam.
Approximate estimate of the number and total tonnage of British vessels	No.	30,497	8,738
	Tons	5,065,054	4,249,442
Approximate estimate of the number and total tonnage of Foreign vessels	No.	29,350	3,343
	Tons	8,258,820	2,427,275

NOTE.—The mode of rendering the statistics of Wrecks and Casualties reported in *Lloyd's Lists* having been altered, the memorandum subjoined is given to show how the facts recorded are carried on from the old to the new forms:—

No.	*Old Headings.*	*New Headings.*
1.	Missing	Missing (same). (9)
2.	Abandoned—	Abandoned (practically the same). (10)
	Recovered	
	Lost	
3.	Collision	Collision. (11)
	Not damaged	Not damaged (omitted).
	Sunk	Sunk.
	Damaged	Otherwise injured.
		[The item "*Not* damaged" must be omitted in taking the totals under this head from the old forms.]
4.	Sinking from causes other than collision	Foundered (practically the same). (1)
5.	Stranded—	Stranded (same). (2)
	Got off	
	Not got off	
	Subsequent fate not known	
6.	Capture	Capture (same). (6)
7.	Piracy	Piracy („). (7)
8.	Burnt or on fire	Burnt or damaged by fire. (3)
		Entirely destroyed.
		Damaged only.
		[The same total as before, but subdivided.]
9.	Dismasted or disabled	Dismasted (practically the same). (5)
12.	Leaky	Leaky (same). (4)
16.	Ship damaged	"Other causes of damage." (8)
17.	Water-logged	
10.	Jettison of cargo under deck	[Not included in new returns, the loss from jettison is only indirect to the ship (through general average). The totals will not be appreciably affected if these items are simply omitted from the old forms.]
11.	„ deckload	
13.	Loss of anchors or chains	
14.	Serious damage to machinery	
15.	Mutiny, sickness, &c.	
	Results to Ship—	*Results to Ship—*
	Total loss	Total loss [including constructive loss].
	Constructive loss	
	Great damage	Damage [taken together].
	Minor „	
	Raised after sinking	Same as before.
	Not damaged or results unknown	
	Results to Cargo as far as reported—	*Results to Cargo—*
	All lost	Same as before.
	Part „	
	All saved	Discontinued.
	Forwarded	
	Heated	
	Shifted	
	Otherwise damaged	

The statistics regarding Life are now so fully rendered by the Board of Trade, that they are omitted from these returns.

IV.—*Statistical Review of the Present Position of Italy. By* M. Toussaint Loua. (Translated from the *Journal de la Société de Statistique de Paris*, February, 1886.)

The *Annuario Statistico Italiano* for the year 1884 deals very exhaustively with the condition of Italy from every point of view; it touches first upon the climate and geographical position of the country, and devotes considerable space to the consideration of demographic and sanitary statistics, which embrace among other subjects the census enumerations, the movement of the population, emigration, the number of patients in the various hospitals, the causes of death, and the sanitary condition of the people generally. That part of the work which treats of the moral and political aspect of the country embraces the following subjects, public and private instruction, the press, charitable institutions, and civil and criminal justice. From it we learn what is the strength of the land and sea forces, the finances of the country, the amount annually expended for the payment of civil pensions, and finally it contains a review of the communal and provincial finances, and much useful information respecting the political and administrative elections.

After the moral and political portion of the work, comes the economic statistical part, properly so called, which comprises questions relating to the mineral production of the country, the agricultural production, the number of live stock, prices of provisions, manufacturing industries, wages, credit institutions, savings banks, post offices, telegraphs, roads and railways; the number, tonnage, and crews of the merchant navy, the entries and clearances of vessels, and the movement of foreign trade.

It is from this publication that the following particulars relating to the moral and economic condition of Italy have been taken, in some cases the data being supplemented by figures referring to later years, which have been extracted from various official statistical returns.

One of the first tables in the *Annuario* shows the linear development of the Italian sea coast, and from it we find that the extent exceeds 3,937 miles, distributed as follows: *terra firma*, 1,995 miles; large islands, 1,387 miles; small islands, 555 miles. The area of the kingdom according to the latest official returns is stated at 114,380 square miles, but according to calculations made by General Strelbitsky the real area of Italy is only 111,376 square miles. At the last census, which was taken on the 31st December, 1881, the population was found to be 28,459,451, showing an increase in ten years of 1,667,097, or 6·22 per cent., or 0·62 per cent. per annum, and the average density in 1881 was 256 per square mile. This population of 28,459.451 would be slightly increased if the inhabitants of Assab, which is the only colony Italy possesses, were included.

As regards the number of communes, while in France there are no less than 36,000, in Italy they only amount to 8,259, of which there are five containing less than 100 inhabitants, and eleven with more than 100,000. The latter are as follows:—

Communes.	Number of Inhabitants.	Communes.	Number of Inhabitants.
Naples	494,314	Florence	169,001
Milan	321,839	Venice	132,826
Rome	300,467	Messina	126,497
Turin	252,832	Bologna	123,274
Palermo	244,991	Catania	100,417
Genoa	179,515		

Of the total population in 1881, 14,265,523 were males, and 14,193,928 females, the males being therefore to the females in the proportion of 100·5 to 100, and the following table will show the number of births, deaths, and marriages, in each of the years 1880 to 1884:—

Years.	Births.	Deaths.	Marriages.	Excess of Births over Deaths.
	No.	No.	No.	No.
1880	957,900	869,992	196,738	87,908
'81	1,081,125	784,181	230,143	296,944
'82	1,061,094	787,326	224,041	273,768
'83	1,071,452	794,196	231,945	277,256
'84	1,130,741	780,361	239,513	350,380

Italian emigration is rapidly assuming very considerable proportions, as a reference to the subjoined statement will show:—

Years.	Emigrants (properly so called).	Emigrants (Temporary).	Total.
	No.	No.	No.
1876	19,756	89,015	108,771
'77	21,087	78,126	99,213
'78	18,535	77,733	96,268
'79	40,824	79,007	119,831
'80	37,934	81,967	119,901
'81	41,607	94,225	135,832
'82	65,748	95,811	161,559

Of the 161,559 persons who emigrated in 1882, 93,930 left for countries in Europe, of whom 53,037 settled in France; while as regards the extra European countries, 7,773 persons left for Africa, 59,695 for America (of whom 18,669 repaired to the United States and Canada) and 24,526 for the Republic of La Plata.

It appears from that portion of the work which is devoted to the consideration of questions affecting the sanitary condition of the people, that there are in the country 9,027 medical men, of whom 1,093 are physicians, 591 surgeons, and 7,343 practising both medicine and surgery. Another table shows the number of insane persons in the various public and private lunatic asylums of

the kingdom. They are as follows: imbeciles, 1,318, and madmen, using the term in its generally accepted sense, 16,153, making a total of 17,471, or a proportion of 6 to every 10,000 of the population.

Coming next to the question of public and private instruction, we find that according to the results of the last census enumeration the proportion of the illiterate population, children under the age of 5 being excluded, was as follows, in each of the years 1861, 1871, and 1881:—

Years.	Proportion of Persons unable either to Read or Write, to every 100 of the Population.
	Per cnt.
1861	78
'71	73
'81	67

But if the marriage registers are to be relied upon it will be found that for the year 1881 the proportion of the population entirely devoid of education was as low as 45 per cent., and if we take the state of education of those who are called upon to perform military service, it appears that the proportion is established in the ratio of 48 per cent. as compared with 64 per cent. in 1846. In this connection it may not be uninteresting to note that the proportion of illiterate conscripts in France at the same period was only at the rate of 14 per cent.

In Italy primary instruction is obligatory, but notwithstanding this fact, out of a population of 28 millions it is estimated that at least 1,778,000 children, by reason of the topographical position of the communes in which they reside, are unable to attend the elementary schools. There are in the country 1,566 dames' schools, accommodating 183,809 children, 92,905 of whom are boys and 90,904 girls, but the elementary schools properly so called numbered in the year 1861 28,490, where instruction was imparted to 1,008,674 children.

Elementary Schools in 1861.

	Number of Boys attending.	Number of Girls attending.	Total.
Public	527,729	357,423	885,152
Private	51,821	71,701	123,522
Total	579,550	429,124	1,008,674

During the scholastic year 1878-79, the latest for which any reliable statistical data on this point are available, the number of schools had increased to 48,530, and the number of scholars to 2,057,977, as the following table will show:—

Elementary Schools in 1878-79.

	Number of Boys attending.	Number of Girls attending.	Total.
Public	1,048,801	853,479	1,902,280
Private	63,469	92,228	155,697
Total	1,112,270	945,707	2,057,977

As regards secondary schools, there were during the year 1880-81 83 royal lycées and 113 royal gymnasia or colleges, with 5,989 and 12,876 students respectively; 25 ecclesiastical lycées and 77 ecclesiastical gymnasia, with 999 and 6,065 students; 14 communal lycées and 100 communal gymnasia, with 280 and 3,279 students; 8 lycées and 37 gymnasia, both foundation schools, with 168 and 1,475 scholars; 111 lycées and 230 gymnasia attached to the seminaries, with 2,004 and 11,141 students, and finally, 57 private lycées and 144 private gymnasia.

Considerable attention is devoted in Italy to the subject of technical instruction, and it is imparted in 40 royal institutions and 25 private establishments to 6,443 students. The subjoined statement will show the distribution of these students according to the various branches of study to which they devoted their attention:—

Subjects.	Number of Pupils.
Science, physics, and mathematics	1,404
Surveying	1,131
Agriculture	69
Commerce and finance	1,490
Industry	82
Various	2,267
Total	6,443

Special schools, such, for example, as those in which instruction is given in navigation, in architecture, and in mechanics, were attended during the same year by 803 students, and as regards the technical schools of navigation, their number it appears amounted to 301, with an attendance of 19,675 pupils. In all, technical instruction is imparted in 390 establishments to 26,921 pupils. In the convents there are 33,986 pupils, of whom 3,176 attend the lycées, 17,340 the gymnasia, 3,174 the technical institutions, 9,651 the elementary schools, and 645 other educational establishments. In the higher educational establishments there are faculties of law, pharmacy, science, and letters, while in addition there were ten establishments in which the higher branches of technical instruction were imparted to 1,235 pupils, and eight special high schools, with an attendance of 730.

As regards the schools of fine arts, to the number of fifteen, they are attended by 3,226 pupils; the five conservatoires of music by 802; the Military Academy of Turin by 314; the Military School

of Modena by 1,190; the School of War by 120, and the four military colleges by 935 pupils.

The three naval schools of Genoa, Naples, and Leghorn had an average attendance of 175, and the School of Engineering at Venice of 149 pupils, and in addition to these there are in Italy 34 special schools of agriculture, attended by 1,151, and 4 schools of mines by 93 students. The schools of arts and industries number 45, with an average attendance of 1,875 students, and finally there are 23 training schools for women, attended by 4,346 pupils. It may be added that the royal libraries, which number 34, accommodate annually 742,534 readers, among whom are distributed more than a million volumes.

Taking next the newspaper press, it appears that on the 1st January, 1883, the number of journals or reviews published in the kingdom amounted to 1,378, classified as follows :—

	Number.
Political	200
„ and religious	58
„ „ scientific	234
Historical, literary, and artistic	190
Scientific and technical	267
Economic, industrial, commercial, agricultural, &c.	194
Comic	83
Educational	61
Exclusively religious	69
Various	22
Total	1,378

We shall not devote much attention to the detailed returns of civil and criminal cases heard before the various tribunals as reported in the *Annuario*, but will proceed to look into the question of the bankruptcies and of the sales that took place under the authority of the courts. In 1882 it appears that the number of sales amounted to 3,757, of which the greater number affected properties valued at between 80*l.* and 2,000*l.*, only 246 sales of properties valued at over the latter amount having taken place by order of the courts. The number of bankruptcies initiated in 1882 amounted to 811, of which 751 were those of merchants, and 60 of various societies and companies. The following table shows the number of bankruptcies classified according to the amount of liabilities in the various cases :—

Amount of Liabilities.	Number of Bankruptcies.
Under 200*l.*	100
From 200*l.* to 2,000*l.*	436
„ 2,000*l.* „ 4,000*l.*	115
„ 4,000*l.* „ 20,000*l.*	97
„ 20,000*l.* „ 40,000*l.*	5
Over 40,000*l.*	5
Amount unknown	53
Total	811

As regards criminal justice, or as it is termed in Italy penal justice, the following figures will show the number of principal cases reported in 1883 as compared with the number in the preceding decade. Taking first the number of persons sentenced by ordinary police tribunals or *pretori*, we find that it amounted in 1873 to 204,860, or a proportion of 76 to every 10,000 of the population, and in 1883 to 232,580, or a proportion of 82 to every 10,000. The number of persons sentenced by correctional tribunals amounted in 1873 to 61,753, and in 1883 to 64,214, or a proportion in each case of 23 to every 10,000 of the population; and finally taking cases heard before the higher criminal courts, it appears that in 1873 they numbered 7,270, or a proportion of 2·7, while in 1883 they had fallen to 5,772, or a proportion of 2 to every 10,000 of the population. The number of persons tried for homicide which in 1879 was 6,040, showed a very considerable diminution in 1882, it having fallen as low as 4,644; while the number of persons accused of thefts *qualifiés* fell during the same period from 48,980 to 40,511, and of thefts *simples* from 41,026 to 35,704. We may therefore draw the inference from the figures quoted above that, although the number of judgments generally has increased, there is a marked diminution in the number and gravity of the crimes properly so called. The number of persons imprisoned in the various prisons and houses of detention amounted to 80,149 in 1880, to 78,755 in 1881, and to 54,037 in 1882.

The following statement will show the number of prisoners on the 31st December, 1880, classified according to the description of penal establishment in which they were confined:—

	Number of Prisoners.
Houses of detention	41,133
„ correction	31,405
Convict prisons	5,582
Various	2,029
Total	80,149

Coming next to the military and naval establishments, we find that by virtue of the law of the 29th June, 1882, the Italian Army on a war footing would consist of 2,119,000 men, composed as follows:—

The permanent army	751,000	men
„ mobilised militia	341,000	„
„ territorial „	1,027,000	„
	2,119,000	„

Of this number there are actually 183,279 men under arms, 170,500 of whom are private soldiers, and 12,779 officers. The remainder are either on unlimited furlough, or can be called permanently under arms at the outbreak of a war.

The Italian navy consisted on the 31st December, 1884, of 125 steamers afloat or building. They were classed as follows: 17 ironclad vessels of the first class; 3 ironclads of the second class; 11 corvettes and torpedo rams classified as second class war ships; 17 *avisos*, gunboats and torpedo rams of the third class; 2 first class transports; 6 second class transports; 2 training ships; 11 steam vessels for local use; 6 lagoon gunboats; 1 large torpedo school ship; 28 first class torpedo boats, and 21 second class torpedo boats. The naval forces of Italy are composed of 33,434 men, 8,816 of whom are under arms, and the remainder on unlimited furlough.

Taking next the finances of the country, it appears from the latest financial accounts that the total ordinary revenue and expenditure of the kingdom, with the annual differences in each of the years 1881 and 1882 were as follows:—

Years.	Total Ordinary Revenue.	Total Ordinary Expenditure.	Difference.
	Lire.	Lire.	Lire.
1881.....	1,518,535,464	1,467,648,226	+ 50,887,238
'82.....	2,219,917,238	2,210,460,620	+ 9,456,618

In the latter year it will be observed that a considerable increase had taken place in the revenue of the country, and the proportion per head of the population amounts to as much as 79 lire, while in France, which certainly has had much to contend with since the year 1870, the proportion of revenue per head of the population is not very much higher, being only at the rate of 83 francs *per capita*. The Italian debt, which in 1860 amounted to 2,439,000,000 lire, rose in 1882 to 12,171,953,358, to fall again to 11,969,768,761 lire in 1883.

The number of State employés and public servants amounted on the 31st May, 1882, to 94,480, of whom 52,098 were unmarried, 38,171 married, 3,482 widows or widowers, and 728 whose civil condition was unknown; while as regards the pensioned civil servants they numbered on the 31st July, 1882, 95,258. The number of electors on the register amounted in 1883 to 1,849,304. The total revenue of the communes in Italy in 1883 amounted, according to official reports, to 528,422,003 lire. In 1882 the revenue and expenditure of the provinces balanced at 119,243,012 lire. The debts of the communes in 1881 amounted to 724,105,313 lire; of the provinces to 102,228,113 lire.

As regards the mineral production of the kingdom, the following table will show the number of mines at work, the quantity and value of the production, and the number of persons employed in the year 1883:—

	Number of Mines.	Production.		Number of Hands.
		Quantity.	Value.	
		Tons.	£	
Iron ore	48	203,582	97,976	1,820
Manganese iron ore	1	9,000	5,760	289
,, ore	4	11,384	10,980	200
Copper ore	15	23,947	82,796	1,565
Zinc ore	57	100,574	257,644	10,026
Lead and argentiferous ores		46,051	316,964	
Silver ore	4	1,510	66,956	1,213
Gold ,,	19	—	13,800	501
Antimony ore	9	2,027	11,572	277
Mercury	2	206	31,356	347
Iron pyrites	5	6,620	3,868	96
Coal	26	214,421	67,456	2,237
Sulphur	367	446,508	1,695,728	31,851
Rock salt	24	18,900	12,924	624
Salt (spring)	2	9,937	10,732	191
Asphalte (mastic and bitumen)	13	6,739	9,452	273
Petroleum	5	225	2,336	92
Boracic acid	12	3,158	101,052	564
Plumbago	—	4,200	7,560	90

A reference to the subjoined statement will show the extent of land under cultivation, and the estimated quantities of the various crops produced in Italy during the year 1883 :—

	Extent of Land under Cultivation.	Estimated Quantities of the various Crops Produced.
	Acres.	Bshls.
Wheat	11,699,662	120,575,263
Maize	4,240,261	73,313,165
Rice	509,817	22,122,958
Barley and rye	1,250,425	15,048,635
Oats	939,319	15,136,646
Beans and peas	1,608,960	11,810,425
		cwts.
Potatoes	173,196	11,313,004
Chesnuts	1,108,319	6,675,987
Hemp and flax	495,766	1,797,482
		Bshls.
Olives	2,210,981	4,308,447
		Galls.
Wine	4,759,275	614,557,130
		cwts.
Tobacco	13,644	113,434

and the number of live-stock is as follows :—

	Number.	Value.
		£
Cattle	4,783,232	51,658,904
Sheep, lambs, and goats	10,612,415	5,093,956
Pigs	1,163,916	1,396,700
Horses and mules	951,412	13,319,768
Asses	674,246	1,078,792

Space will not admit of any lengthened review of that portion of the *Annuario* which deals with the question of the monetary statistics of the kingdom. We can do no more than call attention to the fact that much useful information is given relative to the gold and note circulation, the operation of the banks and credit institutions, and we will confine ourselves to reproducing the following table, which shows the situation of the various savings banks at the end of the year 1883:—

		1883.
Accounts opened during the year	No.	188,530
„ closed „	„	127,494
Number of deposits	„	1,405,464
Amount deposited	£	13,336,532
Number of withdrawals	No.	794,383
Amount withdrawn	£	11,024,834
Amount standing to credit of depositors on 31st December, 1883	„	32,025,364

Taking next the statistics relating to the ways of communication, post offices, and telegraphs, it appears that the total length of national, provincial, and communal roads in the kingdom on the 31st December, 1880, exceeded 51,000 miles, and a very considerable development is shown to have taken place in Italian railroad enterprise, for we find that the length of line which in 1839 did not exceed 5 miles, had increased in 1861 to 1,590, in 1871 to 3,960, in 1881 to 5,522, while in the year 1883 it amounted to as much as 5,871 miles. The cost of construction up to the 31st December, 1882, was rather over 114 millions sterling, 101 millions of which was for the construction and maintenance of the line, and the remainder for the rolling stock. The rolling stock itself consisted as follows: 1,626 locomotives, 4,943 passenger carriages, and 28,693 goods trucks. The number of passengers carried in 1881 was 34,040,515, in 1882 34,372,056, and in 1883 36,817,031, producing a revenue of 3,194,000*l.*, 3,199,000*l.*, and 3,314,000*l.* respectively; while goods to the weight of over 11 million tons were carried in 1883, the receipts from which amounted to over 4,700,000*l.* The total receipts for the year were 8,245,440*l.*, and the expenses exceeded 5,900,000*l.*

A reference to the postal statistics shows that a considerable increase has taken place of late years in the work of the various post offices of the kingdom, as the following comparative statement will show:—

	1871.	1882.
Number of post offices open..... No.	2,668	3,502
„ letters despatched ... „	99,166,532	148,841,649
„ post cards ..... „	Not stated	28,190,039
„ printed circulars .... „	95,725,878	160,726,706
„ packets ..... „	—	2,607,206
„ registered letters .... „	2,883,230	4,102,253
Receipts ..... £	774,124	1,306,432
Expenses..... „	727,728	1,109,176

The length of telegraph line in 1871 was 11,551 miles, as compared with 17,702 miles in 1883, and the length of wire was 37,228 miles against 60,321 in 1883. The number of messages amounted in these years to 2,583,000 and 6,600,000 respectively.

In regard to the mercantile marine, the number of vessels on the register on 31st December, 1884, was stated to be 7,287, with an aggregate tonnage of 971,001, while a considerable increase has taken place in the number and tonnage of vessels entering and clearing at the various ports of the kingdom. It is stated that in the year 1861 the number of vessels engaged in the foreign and coasting trade did not exceed 195,699, of a total burthen of 13,083,350 tons, while twenty years later this number had risen to 219,598, with a tonnage of 32,070,704.

A reference to the subjoined statement will show the tonnage of vessels entered and cleared with cargoes and in ballast distinguishing national and foreign ships, at ports in Italy, during the year 1884 :—

	Entered.			Cleared.		
	With Cargoes.	In Ballast.	Total.	With Cargoes.	In Ballast.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Sailing vessels—						
Italian	503,001	157,802	660,803	422,033	247,747	669,780
Foreign.....	240,096	114,759	354,855	214,906	161,746	376,652
Steam vessels—						
Italian	719,526	34,922	754,448	586,227	79,999	666,226
Foreign.....	2,862,514	583,132	3,445,646	2,076,364	1,439,938	3,516,302

The commercial intercourse of Italy appears to be chiefly with seven countries, the United Kingdom, France, Russia, Germany, Austria, Switzerland, and the United States. The imports from France during the last three years have averaged over 14 millions sterling annually, and the exports over 18 millions. Next in order of importance are the commercial transactions with the United Kingdom, and after that those of Austria, Germany, Russia, Switzerland, and the United States. The following table shows the total value of merchandise, and bullion and specie imported

into Italy for home consumption, and of the exports of domestic produce in each of the years from 1875 to 1884 inclusive :—

	Special Imports.		Special Exports.	
	Merchandise.	Bullion and Specie.	Merchandise.	Bullion and Specie.
	£	£	£	£
1875	48,277,000	336,000	40,892,000	456,000
'76	52,283,000	806,000	48,340,000	334,000
'77	45,662,000	588,000	37,359,000	769,000
'78	42,358,000	467,000	39,944,000	1,868,000
'79	49,881,000	585,000	42,870,000	1,406,000
'80	47,447,000	1,579,000	44,139,000	1,153,000
'81	49,548,000	3,732,000	46,574,000	1,119,000
'82	49,039,000	4,777,000	45,983,000	250,000
'83	51,448,000	3,763,000	47,264,000	733,000
'84	52,707,000	1,044,000	42,616,000	1,240,000

Coal, cotton, and grain form the chief imports into Italy, while the principal exports are silk, raw and manufactured, olive oil, wine, fruit, hemp, and flax.

V.—*Notes on Economical and Statistical Works.*

Revue Générale de Droit et Sciences Politiques publiée avec la collaboration de plusieurs savants nationaux et étrangers sous la direction de M. Nicolas Basilesco. Bucarest. No. 1, July, 1886.

The prospectus of this new quarterly contains as promising contributors a fair array of foreign economists, but in the first number there is only one article which is of interest to the Fellows of the *Society*. Dr. Richard de Kaufmann opens the review with an article on a Central European Zoll-Verein. This is not the first time we have had such a scheme brought before us, and we cannot find much that is new in it. The system may be said to be based on the opinion that all nationalities, England included, will sooner or later declare in favour of protection; there will then be four commercial giants—the United States, Russia, China, and Great Britain—against whom the continental, central, and western European States will have to wage a tariff war. Germany and Austro-Hungary are to start this Zollverein, and the other States are to be gradually joined to this union. We are no doubt living in an era of combinations and unions, but the scheme here propounded does seem at least somewhat impracticable.

Annales de l'École Libre des Sciences Politiques, Recueil Trimestriel, publié avec la collaboration des professeurs et des anciens élèves de l'école. Paris, 1886. Nos. 1, 2, and 3.

This quarterly, edited by some of the eminent Frenchmen, leaders in their several departments, promises to be quite as in-

teresting to students on this side of the Channel as to our neighbours themselves, for in the first numbers we have no less than three articles dealing exclusively with English questions (while more are promised), besides several of international importance. In the opening number M. Ayral deals with the disestablishment and disendowment question of the Church of England, and M. Poinsard offers a lengthy reply to the demands of the Financial Reform Association that more taxation should be thrown on real property in order to reduce the other assessed and indirect taxes. M. Poinsard deals with this question from a fiscal and not from a social point of view. He describes the origin of the income tax, its past and present state, the mode of assessment and collection, chiefly from a real property standpoint, and shows generally his mastery of the subject. He follows Mr. Craigie in maintaining that landed property in England is already far more heavily taxed than any other kind of property, that its burdens are already quite as much as it can economically bear, and that if there are any classes who are privileged under our system of taxation, they are the working classes. He points out that a further increase of taxation of landlords would be unfair from the radical reformers' point of view, as it alone would not deal with the other wealthy classes who have no interest in land, but in taxing whom commerce and industry would be jeopardised. Such a reform—of increased taxes on land—if carried out in its integrity, means a general pauperising of the country and the disorganisation of the public finances, and, if carried out in a modified way, it would be useless, and would amount to little better than an election cry. M. Poinsard points out as a necessary corollary to increased land taxes, the radical changes which the income tax must undergo, such as becoming a graduated tax, the faulty doctrine of which he follows Mr. Goschen in condemning. We may here remark, parenthetically, that the introduction of the graduated property tax introduced into the financial system of the colony of Victoria some years ago, was the immediate cause of the emigration of capital of several million pounds sterling in amount to the other colonies, chiefly to Queensland.

Political Science Quarterly. Edited by the Faculty of Political Science of Columbia College. Boston, 1886. Nos. 1 and 2.

In the two first numbers of this review there are three articles of special interest to the *Society*, viz., The Collection of Duties, by Mr. Frank J. Goodnow; The Legal Tender Question, by Mr. H. H. Neill; and American Labour Statistics, by Professor Richmond M. Smith. The last article calls for detailed attention. A few months ago the British Government instituted a Labour Statistics Bureau, and from this fact the panacea-loving public are already hugging the belief that in the immediate future every variety of labour and wages disputes is to be checked, if not altogether avoided. It may be just as well to see what results have followed the establishment of this class of bureau in the United States, and for this purpose Professor Smith's admirable review will serve well. The first bureau was established in 1869,

and although not the direct outcome of labour organisation, as the Ohio Bureau in 1877, still it was the result of the recommendation of a labour commission. Since 1879 these bureaus have multiplied, and now there are sixteen in existence. Professor Smith points out that the value of the work of the lately established ones must necessarily be small, and he further points out how they nearly all lack the adequate funds for a proper prosecution of their functions. The chiefs, he says, have, with a slight modification here and there, taken up the fair passionless position expected of them, they have consequently restricted themselves to the collection of information and not to the solution of problems. The work allotted to the bureaus is varied, and in certain cases, such as the inspection of factories and the collection of statistics of the industrial resources of the State, their work is not their proper function at all. Their powers, but more especially the means placed at their disposal, are limited, and Professor Smith considers their methods to be defective. Considerable allowance must of course be made for bureaus which are still young and have in reality yet to learn their work, but there are nevertheless faults which ought to have been avoided, namely, mistakes of method in the use of statistics which has led to some extraordinary statements. We refer more particularly to Mr. Carrol D. Wright's result, that the general average weekly wage of a certain class of labourers is 62 per cent. higher than the corresponding average for the same class in Great Britain. Professor Smith points out that the method by which this conclusion was arrived at is not scientific, and explains very clearly how this is so. Those who have read the reports of the Massachusetts Bureau will appreciate their value, and if so far the results are not what could have been desired, Professor Smith's criticism may induce Mr. Wright to remedy the defects.

Hygiène Infantile. Causes de la Morbidité et de la Mortalité de la première enfance à Buenos-Ayres. Par le Docteur Emile R. Coni. Buenos Ayres, 1886. xx + 228 pp., 8vo.

The increasing importance attached to the necessity of reducing the existing high rate of infant mortality more than justifies the publication of this able statistical compilation. The period dealt with, 1875-84, is comparatively a short one, and the work refers exclusively to the population of the city, estimated at 350,000 inhabitants for the year 1885. It is a pity the author did not see his way to include the population of the whole Argentine Republic in his survey. Dr. Coni commences by describing the principal groups of diseases which affect infant life, gives tables of infantile death-rate classed according to disease, draws his averages, discusses the mode of reducing this high death-rate, and finishes with a complete set of the official statistical tables on which his work is based and which occupy from p. 163 to the end of the book. Not the least interesting of the tables is the one showing the mortality from date of birth day by day up to the end of the first month, then monthly up to the end of the first year, and then

quarterly up to the end of the second year. In Buenos Ayres, according to our author, the marriage-rate is 8 per 1,000 of inhabitants, and the birth-rate under 4 per 100, but the correctness of both these rates are to a certain extent vitiated by the facts that the number of the population is only estimated—there seems to have been no census since 1869—and that the registers of births are not so reliable as desirable, being more correctly speaking simply baptismal registers. In arranging the statistics Dr. Coni does not include among the stillborns, as is done in France, those who have died after birth but before registration. The chief statistical results obtained from this inquiry are as follows: the number of stillborns is 2·69 per 100 births; the infantile death-rate, 0—1 year, is 16·32 per cent. of total births, and the infantile death-rate, 1—2 years, is 7·5 per cent. of total births; these three rates thus holding medium positions when compared with those of European countries. The death-rate of children up to one year of age is 25·67 per cent. of the total death-rate of the city, and the number of illegitimate to total baptisms is as 9·21 to 100. For further details we must refer the reader to the work itself.

The Grammar of Indian Finance. By T. Hesketh Biggs. London (P. S. King and Son), 1886. vi + 90 pp., 8vo.

This little book, we might almost call it a pamphlet, is one of the few publications which actually fulfil the object with which they are written. As all those whose duty it has ever been to examine financial statements know, the mastery of a country's finances, however carefully they may have been compiled or published, is even not always attained by an old hand without considerable study and, we may add, waste of time. The difficulty in digesting such documents arises from the fact that every country publishes its financial statements in its own peculiar form, as well as from the fact that to understand a country's finances the student wants to know something of their history. Mr. Biggs has minimised these obstacles. In this grammar every financial department has a chapter devoted to it, wherein it is historically, statistically, and financially treated thus, *e.g.*, Salt Tax. We are told how the tax originated, and of the successive stages through which it has passed; next, the area of production is touched upon, and the various rates charged in the different presidencies and provinces recorded; the receipts, charges, and net revenue are then given in a table, the pros and cons of the tax discussed. and the question, "is the rate too high?" argued out. This system is pursued throughout, and as the statements are remarkable for clearness of exposition, anyone making use of this book cannot fail to grasp the situation. Apart from this manual value which Mr. Biggs has made the principle of his book, there is a lesson to be learnt which will be new to many of our fellow countrymen, namely, that the finances of India are in a very sound condition. The effect of the depreciation in the value of silver is also briefly referred to, but while expressing the opinion that this demands serious if not immediate consideration, Mr. Biggs does not propose any tangible

remedy. His views, however, are generally practical, and command attention. It is a pity he was not able to bring his statistics down beyond 1883-84. To make the work he has completed thus far of still further practical value, we would suggest that he publish a yearly edition, making it in fact an Indian Finance Annual.

The Gold Treasure of India. An Inquiry into its Amount, the causes of its Accumulation, and the proper means of using it as Money. By Clarmont Daniell. London (Kegan Paul), 1884. 214 pp., 8vo.

Discarded Silver. A plan for its Use as Money. By Clarmont Daniell. London (Kegan Paul), 1886. 65 pp., 8vo.

It seems to be the fate of great questions that their difficulty should be increased by the endless schemes of Lilliputian reformers. The silver question of to-day has in this respect been perhaps more unfortunate than most problems, and the articles which have been written about it, not taking into account the talk, are—to put it mildly—legion. The unfortunate part of the whole controversy is that the reformers—if by a great stretch of the imagination they can be called such—appear to have come to the conclusion that the system known as that of Bimetallism, or the legal fixing of a ratio of exchange between gold and silver, as opposed to the natural fluctuating one, is the proper system to be adopted. It is therefore refreshing to meet with an author who does not hold these views. Mr. Daniell, whose two little books lie before us, has attempted in a modest way to solve what is undoubtedly a very grave question, and one which on account of its gravity should be dealt with all the more carefully. As the second book is really the sequel to the first, we may review them together. The author first of all proves, we think fairly conclusively, that there is a very large accumulation of, so to speak, idle gold in India; he proposes, to put it briefly, that the Indian Government should coin as much bullion as the public might bring to the mint into equivalents of English sovereigns, that this coin should be legal tender in payment of large debts, that "the rate at which the value of this gold money should be calculated, in the existing silver money of the country, should be at the rate prevailing at the market for gold metal in silver money; and that this rate, as found to exist from time to time, should be declared from time to time." A reserve of say one million sterling to be constituted as well as one of equal value in silver, calculated at the current ratio of value between gold and silver at the time of making this reserve. Paper currency to be issued against this reserve. If in consequence of a series of withdrawals from, or additions to, the reserve, the value of the gold to the silver, or *vice versâ*, be not the same as their relative value in the open market, then purchases or sales of silver to be made to equalise them. These few words give the principle on which Mr. Daniell would work, and the rest of his *Discarded Silver* is taken up in explaining the practical working of his scheme. This is in fact a scheme whereby the author hopes to maintain the principle that

the natural ratio of exchange of the precious metals should determine the relative value of gold and silver money. It would be out of place for us here, however, to enter on a currency discussion.

Government of India, Department of Finance and Commerce, Indian Trade and Exchange. By J. E. O'Conor. Simla, 1886. Fol., 14 + xxiv pp.

In this paper Mr. O'Conor has set himself the task of disproving the commonly accepted statement that a low exchange is a benefit to India by stimulating trade. We need not follow his arguments, which are clear and to the point, and simply notice that his inquiry leads him to the conclusion that a low exchange is at best only a palliative to bad trade. The tables and diagrams with which the paper is furnished throw considerable light on the Indian import and export trades since 1873, and on the fluctuating increase in quantity, coupled with increased aggregate, but with declining individual, values. It is remarkable that excepting jute, indigo, and rice, all the great export staples have fallen in value; the rise in the price of jute and indigo is not accounted for, but that of the price of rice is attributed to the temporary failure of crops in Bengal. We do not see our way to accept as correct this explanation regarding the rise in the price of rice, for only twice (p. xvii) since 1873 does Mr. O'Conor show the price of this grain to have been lower than in that year. Moreover, only a few months ago our author told us (*Prices and Wages in India*, p. 14) that the prices of cereals which have ruled in India during the past five years are distinctly *higher* than during previous periods, if the years of drought are not taken into consideration. The perusal of the paper certainly impresses one with the depressed state of the Anglo-Indian trade, but at the same time, judging by the explanation in the summary (p. 12, sec. 5), the Indian cultivator has barely felt any evil effects. After all, we have ceased (or pretended to have ceased) to govern India for ourselves, and until it can be proved that the native is likely to suffer more under a state of low exchange than he would under the ordinary conditions induced by a depressed state of trade, it is certainly not advisable to meet this difficulty by legislation. It is worthy of remark that Mr. O'Conor offers no alternative by means of which the Anglo-Indian trade is to be improved.

British Association for the Advancement of Science. Montreal Meeting, 1884. *Canadian Economics, being papers prepared for reading before the Economical Section, with an Introductory Report.* Montreal and London, 1885. 8vo., xxvi + 350 pp.

It was a happy idea to print these papers in a separate form, for they contain some good statistical essays on subjects which are of common interest. There is, for instance, Mr. Lowe's paper on Population, Immigration, and Pauperism in Canada; also Mr. Hague's account of the Banking System of Canada; papers

on the Savings Bank System in Canada, by Mr. J. C. Stewart and Mr. T. D. Tims; A Sketch of Canadian Finance, by Mr. J. McLennan, &c., &c. The name of the editor is not mentioned, but we presume the editor was Mr. D. A. P. Watt. The volume is incomplete, not being furnished with an index.

VI.—*Additions to the Library.*

Additions to the Library during the Quarter ended 30th September, 1886, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.* (*British*); (f) *Periodicals, &c.* (*British*).

Donations.	By whom Presented.
(a) Foreign Countries.	
Argentine Republic—	
Buenos Aires.—Bulletin mensuel de Démographie de la ville de—. V^e^ année. Nos. 4—6, 1886	The Statistical Bureau
Austria and Hungary—	
Osterreichische Statistik—	
Band vi. Statistik der Rechtspflege. Heft 3, Die Ergebnisse der Strafrechtspflege 1882	The Central Statistical Commission
Band xii, Heft 2. Bewegung der Bevölkerung im Jahre 1884	
Hungary—	
Magyarország Aruforgalma Ausztriaval es mas Orszagokkal. (Trade Statistics.) Fuzet 2—4, 1886	The Royal Hungarian Statistical Bureau
Statistisches Jahrbuch für Ungarn. 1883, Heft 2, Sanitatswesen; 1884, Heft 1, Politische Eintheilung und Bewegung der Bevolkerung im Jahre 1884	
Ungarns Waarenverkehr mit Österreich und anderen Ländern, für 1883 und 1884, und für das halbjahr 1885, vom Monate Juli bis ende Dezember	
Ville de Prague. Bulletin hebdomadaire de la—, et des Communes-faubourgs. (Current numbers)	The Statistical Bureau of Prague
Der Feuerwehrmann. Wochenschrift für Feuerloschwesen. Jahrgang IV, No. 25. 1886. Fol.	Professor E. Beyer
Belgium—	
Annuaire Statistique de la Belgique. XVI^e^ année, 1885. 8vo	The Administration of General Statistics
Annales des Travaux Publics de Belgique. Premier Cahier. Tome xliv. Plans. 8vo. 1886	The Administration of Mines
Ville de Bruxelles. Bulletin hebdomadaire de Statistique Démographique et Medicale. (Current numbers)	Dr. E. Janssens, Brussels

Donations—Contd.

Donations.	By whom Presented.
(a) **Foreign Countries**—*Contd.*	
China—	
Imperial Maritime Customs—	
I. Statistical Series, No. 2. Customs Gazette, No. 69, January—March, 1886	Sir Robert Hart, K.C.M.G.
I. Statistical Series, Nos. 3 and 4. Returns of Trade at the Treaty Ports, and Trade Reports for the year 1885	
II. Special Series, No. 2. Medical Reports for the half year ended 30th September, 1885. 30th issue. Plates	
Corea. Annual Reports on the Trade in Foreign Vessels. No. 1. Year 1885. 4to.	
Denmark—	
Statistiske Meddelelser, Tredie Række, 8de Bind. 8vo. 1886	The Statistical Bureau of Denmark
Statistisk Tabelværk, Fjerde Række. 1886— Litra A, No. 4. (Causes of Deaths, 1880-84)	
„ D, „ 9a. (Navigation and Shipping in 1885)	
Nationalökönomisk Tidsskrift. Ny Række. Hefte 4, 5. 1886	The Danish Political Economy Society
Egypt—	
Budget Provisoire du Gouvernement Egyptien pour l'Exercice 1886	Joseph Rabino, Esq., Alexandria
Comptes comparatifs du Gouvernement Egyptien, 1880-85	
Encaissements, Caisse de la Dette Publique, 1884 à 1886. MS.	
Report on the Finances of Egypt during the years 1885 and 1886, by Mr. Edgar Vincent	
Egyptian Statistical Tableau for the year 1885, compiled and published annually by R. J. Moss and Co., Alexandria. Nineteenth issue. Sheet	Messrs. R. J. Moss and Co.
France—	
Ministère de l'Agriculture. Bulletin. Ve année, Nos. 3 et 4, 1886	The Ministry of Agriculture
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Juin, Juillet, 1886	M. A. de Foville
Ministère des Travaux Publics. Bulletin du—. Statistique et Legislation Comparée. Juin, Juillet, 1886	The Ministry of Public Works
Ville de Reims. Bulletin Mensuel du Bureau Municipal d'Hygiène. Juin, Juillet, 1886	The Bureau of Hygiène
L'Economiste Français. (Current weekly numbers.) Paris	The Editor
Révue Bibliographique Universelle, Paris :—	
Partie Littéraire. Juillet, Août, 1886	”
„ Technique. Juillet, Août, 1886	
Révue Géographique Internationale. XIe année, Nos. 126—129, 1886	”

Donations—Contd.

Donations.	By whom Presented.
(a) **Foreign Countries**—*Contd.*	
France—*Contd.*	
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NOTICE.

The Diagrams, referred to in the *Note* on p. 570, which are being furnished by Sir Robert Stout, will be issued with a future number of the *Journal*, as some of them have yet to be received from New Zealand.

Erratum in PART III, VOL. XLIX.

At p. 627, in the third column of the Table, "Legal Tender," for "Holland 22·5," read 12·5.

JOURNAL OF THE STATISTICAL SOCIETY,

DECEMBER, 1886.

On the Cost *and the* Conditions *of* Working Railway Traffic *in* Different Countries.* *By* J. S. Jeans, Esq.

[Read before the Statistical Society 16th November, 1886. Richard Biddulph Martin, Esq., M.A., a Vice-President, in the Chair.]

It goes without saying that the subject of railway transport is one of great importance. It is important alike to the general public, whose social and industrial welfare is so closely bound up with adequate and inexpensive transportation facilities; to the investing public, whose main concern is to see railways established as profitable commercial undertakings; to the economist and statistician, who find in the widely-ramified phases of railway development one of the most inviting and fertile themes for their philosophic speculation and treatment; and to the many industrial interests that are largely maintained by, and consequently dependent upon, the enormous business which is necessary to meet the every day requirements of railway enterprise.

The working of railway traffic is a subject that presents such a great variety of aspects that it is manifestly impossible to deal with it in a satisfactory, far less an exhaustive manner, in the course of a comparatively short paper like this. Nevertheless, it may be found practicable to put forward facts and suggestions calculated to draw attention to some characteristics that are more or less peculiar to each country; and if such a result should happily contribute, in however small a degree, to aid in the solution of the intricate railway problems that are likely, before many months have elapsed, to claim the most earnest consideration of parliament,

* The principal sources of the data made use of in this paper are:—

1. The railway returns for the United Kingdom, issued by the Board of Trade.

2. The statistical abstracts of the principal and other foreign countries, also issued by the Board of Trade.

3. Poor's manuals of the railroads of the United States.

4. Statistique des chemins de fer de l'Europe pour l'année 1882, et résultats généraux de cette statistique pour l'exercice 1883.

5. The report on railway transportation in the United States, issued from the Census Office, Washington (1880).

the very considerable labour involved in the preparation of this paper will not have been undertaken in vain.

At the threshold of our inquiry we have to face the remarkable and largely inexplicable differences that occur in regard to the first cost of construction and equipment. Table A in the appendix will make these differences manifest. It embraces the railway mileage constructed in the principal countries of the world in 1883; and shows that the average expenditure incurred per mile of line open varies from a *minimum* of 5,430*l.* in Finland, to a *maximum* of 49,257*l.* in the case of England and Wales, whence it follows that in a country so remote as Finland, where materials would naturally be expected to be more expensive, the outlay has been less than one-ninth part of that incurred in England, where materials generally are cheap.

In the twenty-one countries tabulated in this statement, there have been constructed about 246,000 miles of railway, at a total cost of 4,323¼ millions sterling, being an average of about 17,230*l.* per mile. This average is only about a third of that found for England and Wales. If, however, the United Kingdom is entirely eliminated from the record, the total mileage constructed comes out as 227,000 miles, and the expenditure falls to 3,537 millions sterling, being an average of about 15,200*l.* per mile, or considerably less than one-third of the average cost incurred in England and Wales, and about one-half the cost incurred in Scotland.

It would take up too much time to endeavour to analyse the various causes that have brought about these remarkable differences. Nor is it necessary for our present purpose. We have to deal with the facts as they are; and the fact of an enormously higher expenditure on English railways, however much it may be a matter for regret, and however adversely it may be calculated to affect our industrial prospects, must be treated not only as a fact, but as one incapable of remedy or amelioration.

Manifestly the first and most permanent effect of the very much larger capital expended per mile open on English lines is that of requiring a very much larger traffic to produce the same net profit as on lines that have been more economically constructed. An average net income of 608*l.* per mile will pay a dividend of 4 per cent. (a figure that may be taken as the average of railway investments) on the sum of 15,200*l.*, which we have found to be the average mileage cost of the railways of the world, excluding our own. But in order to pay the same rate of interest on English railways an average net income of 1,968*l.* per mile is necessary, while on the railways of the United Kingdom, as a whole (which have cost over 42,000*l.* per mile), a net income of 1,680*l.* is necessary, or 176 per cent. more than the average required to

pay the same rate of dividend on the railways of the rest of the world.

Here, then, is the determining factor of the English railway problem—a factor which is unalterable by any expedient or process short of the wiping off or extinction of a great part of this huge capital burden. Having the fear of the 400,000 British railway shareholders before my eyes, I am not quite prepared to counsel so drastic a remedy; and in now proceeding to consider the conditions under which railway undertakings are worked in different countries, we must, if you please, regard the capital cost, and the requirements which it inevitably entails, as the governing pivot around which all the other essential facts revolve.

But if the capital expenditure on British railways has been phenomenally great, so also is the volume of their traffic and the receipts therefrom. To illustrate this fact, the following table has been prepared :—

Statement showing the Average Gross and Net Earnings and Working Expenses per Mile of Railway Open in different Countries (1883).

Countries.	Gross Receipts.	Net Receipts.	Per Cent.	Working Expenses.	Per Cent. of Gross Receipts.
	£	£		£	
Germany	2,226	999	44·8	1,227	55·0
Belgium	2,346	981	44·5	1,365	58·2
France	2,716	1,236	45·5	1,480	52·5
Austria-Hungary	1,623	695	42·8	928	57·2
Italy	1,404	394	28·0	1,010	72·0
United States*	1,296	488	39·9	808	62·3
,, Kingdom	3,477	1,709 †	49·1	1,768	50·9

* In the case of the United States, the net receipts are distinguished from the "total available revenue," the latter amounting to 360 millions of dollars, and showing a net average of 598*l.* per mile; the former amounting to 291½ millions of dollars, and giving a net income per mile open of 488*l.*, as above shown. It is also to be noted that the net earnings, as well as the gross, owe something to coal lands, &c., and other operations besides mere transport.

† The figures for the United Kingdom apply to the year 1885, when there was a diminution of both gross and net receipts per mile open, as compared with several immediately preceding years.

It is not necessary to carry this comparison further, since the economic conditions of other European countries and the British colonies are so entirely dissimilar to those of British railways, that further details could serve no good purpose.

The question that is naturally presented for consideration, on looking at these figures, is—

"Since it is necessary that the net receipts from railway

" working in the United Kingdom should average about 1,700*l.* per " mile, in order that shareholders may divide a profit of 4 per " cent.; since that average can only be arrived at by keeping up " the present range of gross receipts, or by reducing the working " expenses; and since the maintenance of the present range of " gross receipts involves a higher range of rates and fares, how " far is it possible to effect any economy in the working expen- " diture, which is now very much higher than that of any other " country ?"

It is difficult to furnish an adequate reply to this question. The economic circumstances of every country are more or less peculiar to itself, so that there is no reliable standard by which to test the comparative economy or extravagance of British railway administration on an open mileage basis. If we apply the test of the quantity of traffic carried, we find that in Belgium, where the railways carry 14,132 tons of goods traffic per mile open, as against 14,376 for the United Kingdom, the working expenses amount to only 1,480*l.*, or 288*l.* per mile less than in our own country. In the State of Pennsylvania, again, which is the only other case at all comparable with our own, the volume of goods traffic carried per open mile amounts to rather over 16,000 tons, but the working expenditure also rises to 1,900*l.* per mile, or 114*l.* more than in the case of the United Kingdom. In France, the volume of goods traffic only amounts to 5,840 tons per mile, and yet the working expenses are within 288*l.* of those of British railways, on which, as we have seen, 14,376 tons are carried per mile open.

We now propose to consider the several elements that compose the total cost of railway working under different circumstances. Those elements are of two kinds, the first varying according to the amount of the traffic; and the second, if not unvarying, at any rate so largely fixed as to be to a great extent independent of the volume of traffic carried.

To the first category belongs the cost of haulage, or locomotive power, the maintenance of way, the repairs and renewals of rolling stock, and, to a much more limited extent, the item of traffic charges. In the second category (which includes administration, the keeping up of railway stations, &c., the payment of rates and taxes, the break and block systems, and so on) are usually reckoned the larger proportion of the items " traffic " charges," " general charges," and " miscellaneous expenses."

These several items are tabulated, as regards the twelve principal railways in the United Kingdom, in Appendix B, the standard of comparison being the train-mile. In every case there appears to be a great amount of variation between the different

companies, which is not to be explained by variations in the volume of the traffic transported, since the train-mile standard is, or ought to be, almost entirely independent of such variations. Thus, as regards the maintenance of way, the Great Western, with an expenditure of 6·90*d.* per train-mile, is 2·50*d.*, or 57 per cent. higher than the Manchester, Sheffield, and Lincolnshire Railway, with an average of only 4·40*d.* This, however, may be due to the fact that in the particular year selected for comparison (1884), the Great Western laid down a larger, and the Manchester, Sheffield, and Lincolnshire a smaller, proportion of renewals than usual, so that it would hardly be fair to attach too much importance to differences appearing in this item.

It is not so, however, to the same extent with the element of locomotive power, which rises as high as 10·75*d.* per train mile in the case of the North Eastern, and falls to 7·13*d.* in the case of the Manchester, Sheffield, and Lincolnshire, showing an increase in the former over the latter of 3·60*d.* per train-mile, or 50 per cent. Now, both of these lines carry a very large volume of mineral traffic, and traverse almost contiguous districts. They are both on important coal fields, and have thus the command of cheap fuel. Why, then should there be this great difference? In so far as it is not due to mere prodigal expenditure, it may, of course be referred to steeper gradients and heavier trains in the case of the less economical line; but on this point there is a lack of reliable *data.*

The only other item which varies, or ought to vary, directly as the volume of traffic, is that of repairs and renewals of rolling stock. Here there are greater differences than we have found to occur in reference to either of the other two items that vary according to the amount of traffic; the North Eastern, with an average of 4·35*d.* per train-mile, being 2·01*d.* or 86 per cent. above the London and North Western, with its average of 2·34*d.* per train-mile. This remarkable excess, whatever its origin, does not appear to be due to any radical differences in the conditions under which the traffic is carried on, since the North Western carries almost as large a mineral traffic as the North Eastern, and a considerably greater general merchandise traffic.

It is not, however, until we come to the item of traffic charges that we are confounded by the extent of the variations that occur on various lines. In regard to this element we find that the Lancashire and Yorkshire line, with an average of 13·21*d.* per train-mile, is 4·71*d.*, or 55 per cent., above the Caledonian system, which only expends 8·50*d.* per train-mile. The two systems have much in common. Both have a large mineral traffic, both traverse districts with exceptionally difficult gradients, and both have the command of cheap fuel; and there is not anything like an adequate

explanation of the excess in the English line in the fact that wages are rather higher in Lancashire.

To the uninitiated some of these details may possibly appear trivial, but their vast importance in relation to the economical management of railways may be appreciated by the fact that as between the average train-mile expenditure on "traffic charges" in the case of the Lancashire and Yorkshire Railway, and that occurring on the Caledonian, there is a difference which, if applied to the total train-mileage of the country, would represent rather over 5 millions sterling per annum. But there are greater differences even than this, for the Lancashire and Yorkshire, having a total train-mile expenditure of 35·53*d.*, is 7·27*d.*, or about 30 per cent., higher than the Midland Railway, which traverses an almost conterminous district, and this difference, on the whole train-mileage of the United Kingdom in 1884, would amount to a trifle over 8 millions, or just one-fourth of the total net receipts from railway working in the same year.

It is manifest, therefore, that there are very remarkable differences in the matter of economical working, as between the principal railways of the United Kingdom, and these differences are not explained by the not unnatural variations in the character of the traffic, by geographical considerations, by the higher or lower rate of wages, by the more or less expensive character of the fuel and permanent way materials. They co-exist on lines that have practically the same boundaries, if they do not quite run parallel to each other; and hence they suggest the expediency and the clear possibility of securing a greater margin of economy than appears to have been attained up to the present time.

The unwisdom of venturing, however timidly, to express any opinion as to the future of railway expenditure, is shown in the fact that the Duke of Devonshire's Commission reported in 1867 that "it is not probable that any diminution of the principal items "of charge can be anticipated," and that "an increase may be "expected in the items of wages and materials." The Commission could not have anticipated that within twelve or fourteen years steel rails, which were then sold at 12*l.* to 15*l.* per ton, would have fallen to less than 5*l.*, and that other items would show an almost equal decrease of cost. Equally impossible of prevision was the enormous inflation of prices in 1872-74, and the very remarkable reductions in all the chief items of working cost that have since occurred. The inflated prices of 1872-74 sent up the train-mile cost of working the railways of the United Kingdom generally from 2*s.* 6*d.* in 1870, to 3*s.* 8*d.*, in 1874. Since then, however, there has been an almost continuous fall in the important items of maintenance of way, locomotive power, and repairs and renewals.

It is believed by good authorities that we have reached the bottom limit of economical expenditure, and that there is not much likelihood of any further abatement of the present average of 2*s.* 8*d.* per train-mile. It must be confessed that appearance would seem to justify this conclusion. The cost of materials could hardly be expected to fall much below the present range of prices, and labour is an item that seldom suffers any considerable fall. These two items are the main factors in railway working, and must always remain so. On the other hand, however, economy of administration would be likely to be promoted by greater centralisation, and there is unmistakable scope for economy in the items of "traffic charges," "general charges," and "miscellaneous outlay," which are not necessarily functions of the extent of the business carried on.

From what sources, then, if any, are we to expect any material improvement in the present economic condition of the railway interest? Are we to conclude that passenger fares and traffic rates are henceforth to be capable of no amelioration as a result of increased economy of working, or may we look forward hopefully to the future as likely to evolve from its inscrutable matrix, chances and changes that will tend to alleviate the present distressed condition of industry?

There are, we think, two directions whence highly important economic reforms may fairly be expected,—reforms that are not only within the often deceptive range of probability, but are all but certain to take place within no distant period. The first is the adoption of fuller train-loads, alike of passengers and goods traffic; the second is the natural increment of such traffic, and the consequent receipt of higher gross earnings relatively to the working expenditure.

The first of these elements is of the greatest possible importance, and we need make no apology for dealing with it at some length. It presents two distinct aspects for consideration,—the first that of how the train-mile receipts of one country compare with those of another; the second that of the variations and tendencies of train-mile receipts in the same countries as between one period and another.

The average train-mile receipts of the principal European countries in 1883 were—

	s.	
Germany	6·58	per train-mile.
France	5·53	,,
Belgium	4·22	,,
Italy	4·62	,,
Switzerland	6·66	,,

while in the United Kingdom the average was 5*s.* 1*d.* in 1883, and

4*s.* 10*d.* in 1885. In the United States the average train-mile receipts rise to 8*s.* 6*d.*

There does not appear to be any sufficient reason why the train-mile receipts of European countries should take so low a range. The problem is, however, an intricate and complex one, being affected by many different considerations, such as the character of the gradients and curves, the average length of the lead, the composition of the traffic, and the extent and character of the facilities demanded and enforced by competition.

In Great Britain, the railways labour under more serious disadvantages than are met with in most other countries in respect of the generally undulating character of the surface, and the consequent mechanical and economic limitations imposed upon the average load capable of being transported in certain districts. This point is one of such importance that it has been seriously recommended that some lines should transfer all their heavy traffic to canals, and restrict their transportation operations to light loads and high rates of speed. It is hardly likely that any of our principal lines will abdicate their primary functions in this wholesale fashion; and it would probably benefit no one if they did, since healthy competition between railways and canals is a thing to be desired. But it is, all the same, a determining factor in the calculation of how great an average load may be transported on our principal lines with advantage.

Even, however, when we have allowed for the most severe gradients, the present system must be regarded as wasteful and extravagant. The great secret of economic working is to secure the greatest live or net load, relatively to the non-paying or tare load. A few figures will enable this fact to be appreciated. An average passenger train, without a single passenger, may be taken as consisting of—

1 engine weighing	.....	35 tons
1 tender „	.....	25 „
2 truck vans „	.....	12 „
8 carriages „	.....	64 „

—making a total of 136 tons of tare or dead weight that must be hauled whether the number of passengers on board be great or small. Now, if we assume that each passenger weighs 1 cwt., it is clear that in order to get a live or net weight equal to the tare or dead weight, we must have 2,720 passengers to each train; but as the average number of passengers does not probably exceed 60 per train, it follows that the hypothetical average of 20 passengers to the ton would give only 3 tons of paying for 136 tons of non-paying weight, a ratio which, on the face of it, is little short of absurd. If the average number of passengers were raised to 300,

it would only increase the weight to be hauled by 12, or at the most 15 tons, and with this average, the train-mile receipts from passenger trains, instead of being only 4*s*., as they were in 1885, would be three or four times as much.

It is to be lamented, however, that instead of increasing the average receipts per passenger train-mile, the railways of the United Kingdom have within recent years been diminishing their train-mile receipts, as the following table shows:—

Statement showing the Number of Train-Miles Run by Passenger Trains, the Receipts from Passenger Traffic, and the Average Receipts per Train-Mile.

Years.	Passenger Train-Miles.	Receipts from Passenger Traffic.	Average Receipts per Passenger Train-Mile.
		£	*s.*
1872	92,995,324	22,287,555	4·7
'74	96,749,953	24,893,615	6·1
'76	105,918,921	26,163,551	4·9
'78	113,184,252	26,889,614	4·7
'80	122,548,258	27,200,464	4·4
'82	132,183,898	28,796,813	4·3
'84	143,144,694	30,030,450	4·1
'85	146,458,206	29,773,022	4·0

We have now to distinguish between the train-mile receipts of goods and passenger trains, since there may be, and indeed generally are, very important differences between them. This will be made sufficiently clear from the following tabular statement, which compares the total train-mile receipts of different countries with the train-mile receipts from goods traffic alone:—

Statement showing the Average Train-Mile Receipts of different Countries in 1883, *and the Receipts from Goods Traffic, as such.*

Countries.	Average Train-Mile Receipts, all Sources.	Average Train-Mile Receipts from Goods Traffic.	Average Train-Mile Receipts from Passengers.
	s.	*s.*	*s.*
Germany	6·85	9·3	3·8
Austria-Hungary	9·3	12·3	5·4
Belgium	4·22	6·1	2·7
France	5·53	10·9	3·3
Italy	4·62	8·1	4·5
Luxemburg	4·2	—	—
Russia	10·6	12·0	8·0
Finland	—	7·0	—
United States	8·00	8·9	4·6
Canada	4·49	—	—
India	10·4	10·8	8·6
United Kingdom	4·8	5·6	4·0

In most countries, therefore, the train-mile receipts from goods traffic are above those from passenger trains, and in every country named except Holland, the goods traffic receipts are higher than those of the United Kingdom. This is not due to the higher range of traffic rates in foreign countries. On the contrary, there is hardly any foreign country that does not enjoy lower rates than our own, and when this circumstance has been taken into account, it makes the case of British railways appear still worse, seeing that the train-mile averages may be brought up by higher rates, as well as by heavier net loads.

We have no direct clue to the average weight of the live or paying load carried on British lines. Some railway authorities place the average at 70 tons; others place it at a higher or a lower figure. My friend Mr. Price-Williams has recently submitted for my consideration a calculation on the basis of an average load of 100 tons for ordinary merchandise trains, and an average load of 250 tons for mineral trains, which I herewith reproduce:—

England and Wales.

		Average Lead.	Train-Miles.
Goods tonnage .... $\frac{64,542,283}{100}$	= 645,422		
Add empty return 10 per cent. = 5 per cent. on total trains	32,271		
	677,693	× 94·50 miles =	64,042,088
Mineral tonnage $\frac{155,432,872}{250}$	= 621,731		
Add 90 per cent. return empties = 45 per cent. on total trains	279,799		
	901,511	× 47·33 miles =	42,668,515
			106,710,603
Actual train-mileage, as given in Board of Trade returns			106,977,533

Now, although this hypothetical estimate appears to agree very closely with the actually ascertained mileage, as given in the official reports, I am disposed to believe that it is exaggerated as regards both the average load and the average length of lead. The gross tonnage receipts give us a clue to the one—the average lead; and the average train-mile receipts give us a clue to the other—the average weight of the load. The average receipts per ton carried on the railways of the United Kingdom in 1885 were:—

	s.	*d.*
For mineral traffic	1	8
„ general merchandise	5	6

It appears to be tolerably evident that if we assume an average mineral rate of $\frac{1}{2}d.$ per ton per mile, in order to make the most ample provision for meeting the estimates of Mr. Price-Williams, we should only have an average lead of 40 miles; but since, to my certain knowledge, a very large proportion of the mineral traffic of this country is not carried at less than $1d.$ per ton per mile, the average rate will probably be nearer that figure than $\frac{1}{2}d.$, which would reduce the average lead to about 20 miles, instead of 47·33. As regards general merchandise, the average rate is between $1\frac{1}{2}d.$ and $2d.$ If we adopt the lower figure, the average length of lead will come out as about 50 miles. This figure is, however, largely conjectural.

As regards the average weight of the load hauled, the train-mile receipts appear to be equally adverse to the estimate of Mr. Price-Williams. The official figures for 1885 are $5s.$ $7d.$ per train-mile for both goods and mineral traffic, the train-mileage of each not being separately distinguished. Now, whatever may be the average rate charged for the transport of goods and mineral traffic in this country, it is certainly not under a penny per ton per mile; and if we adopt this figure as the closest approximation possible in the absence of those exact and specific returns of ton-mile rates which are obtainable for all other countries, the average load carried would come out as about 70 tons. It is, however, necessary to make a liberal allowance for return empties and shunting operations. What this allowance ought to be, probably no two railway authorities are quite agreed; but if it is assumed as 20 per cent. of the average calculated mileage, it would only result in bringing up the average load from 68 to 82 tons, instead of the 100 tons estimated by Mr. Williams.

I almost feel as if I ought to apologise for dwelling at such considerable length on these matters of detail; but my excuse is that however trivial and uninviting they may appear, they really lie at the root of the whole question of railway rates and charges. The higher rates imposed by British railways are justified by railway directors on the ground that the average length of lead in this country is very much less than in continental countries, and that there is consequently a very great deal more expense involved in handling the traffic, the cost of which is practically unaltered whether the distance over which it is transported be long or short. There is undoubtedly some ground for this contention; but as the following figures show, the average receipts from goods traffic in this country, per ton transported, are not so much below those of other countries as railway apologists would sometimes have us believe.

Statement showing the Tonnage of Goods Traffic Transported in different Countries, the Total Gross Receipts therefrom, and the Average Receipts per Ton.

Countries.	Receipts from Goods Traffic. 1 = 1,000.	Tonnage Carried. 1 = 1,000.	Average Receipts per Ton.
	£	Tons.	*s.*
Germany	32,914	183,808	3·58
Austria-Hungary	18,249	64,754	5·64
Belgium	3,649	27,640	2·64
Denmark	263	1,148	4·58
France	30,236	96,822	6·25
Italy	4,325	11,598	7·46
Luxembourg	91	1,925	0·95
Norway	183	1,050	3·50
Holland	913	5,939	3·07
Roumania	572	1,397	8·19
Russia	26,295	44,067	11·93
Switzerland	1,447	6,366	4·55
Totals and average	119,137	446,517	5·34
United States	108,902	400,453	5·44
United Kingdom—			
Mineral traffic	16,255	189,485	1·72
Merchandise	22,421	76,899	5·83
All goods traffic	38,701	266,382	2·90

It appears, then, that if we take the whole goods traffic of the United Kingdom, and compare it with the total goods traffic of continental Europe, the average receipts per ton transported come out as very little more than one-half the continental average. But if we compare the average receipts from general goods and merchandise traffic (excluding minerals), the average of Great Britain is *higher* than the average of continental Europe, from goods traffic as a whole.

Which of these two standards of comparison is the fair one? The United Kingdom occupies, in regard to mineral traffic, an unique position. As we have just seen, our railways carry a larger volume of mineral traffic alone than the whole traffic of all the continental lines put together. We have, at the same time, a larger volume of merchandise traffic than any other European nation, our general goods traffic exceeding the total traffic of every continental country, excepting only Germany and France. We have not the necessary elements of an exact comparison of the general merchandise traffic of different countries, as distinct from minerals, since the two descriptions of traffic are not separated in continental traffic returns, as they are in those of our own country; but a tolerable knowledge of the mineral resources and productions of

different European nations enables me to assert that in no other country except Germany and Belgium will mineral traffic form anything like one-half of the whole traffic carried. From this general observation I except Luxembourg, which has an almost exclusively mineral traffic, and where the average receipts per ton transported are not one-third of what are earned over the whole traffic of the United Kingdom.

Since, however, Germany and Belgium are the nations that have most in common with our own, since they have, like Great Britain, a very large mineral traffic, since they are our most active and successful industrial competitors, and since they are the standard by which our own railway system is most frequently compared and judged, it is desirable that we should take special notice of the fact that their average tonnage receipts, considered as a whole, are scarcely in excess of those found for the United Kingdom; thus—

In Germany the average tonnage receipts amount to 3·58*s*., or 0·68*s*. per ton above those of the United Kingdom.

In Belgium the same average amounts to 2·64*s*. per ton, or 0·26*s*. under the average of the United Kingdom.

In Holland, the same average amounts to 3·07*s*. per ton, or 0·17*s*. above that of the United Kingdom, while

In Luxembourg, the average is 0·95*s*. per ton, or 1·95*s*. under that of the United Kingdom.

In view of these facts, what becomes of the contention that the average length of lead is shorter, and the average receipts per ton carried are much lower in the United Kingdom than in other European countries? The fact is, that if we bring the different European countries to the standard of general merchandise traffic only, disregarding minerals altogether, it will most probably be found that the British average is above that of every country in Europe, except France, Italy, and Russia. It may be, and probably is, the fact that the length of lead in our own country is generally shorter, but we have now seen that the railways take good care not to suffer by such a circumstance.

In all the leading countries of the world there has, within recent years, been a tendency towards a reduction of the average receipts per ton carried. This tendency is not likely to be so much a result of a diminished lead, as of a reduction in the cost of transport. The following statement shows the gross railway receipts per ton carried at different dates:—

Countries.	Average in 1874.	Average in 1884.
United Kingdom—	*s.*	*s.*
Mineral traffic	1·9	1·7
Merchandise	5·9	5·5
France.....	8·7	6·8
Belgium	2·4	2·3
Prussia	4·0	3·4

It would be interesting to discover how much of the reduction shown for the United Kingdom, if any, is due to abatements in rates; and how much, if any, is due to variations in the average length of lead. We are unable, however, to throw any light upon these points.

We have already seen that one of the first and most startling characteristics of railway statistics is the enormous difference that occurs in the cost of construction, even in cases and under circumstances where the conditions to be met appeared to be more or less parallel to each other. Another distracting feature is the increase or decrease of capital cost per mile open, as between different periods.

Appendix C shows the average cost per mile of railway in the principal countries of the world between 1874 and 1884. It will be noted that in the United Kingdom, Germany, the United States, and Belgium, there has been an increase of cost per mile open, while in France, Austria-Hungary, and Italy, there has been a decrease. The results are summarised in the following statement:—

Average Cost per Mile of Railway Open in different Countries in 1874 *and* 1884, *with Amount of Increase or Decrease in the latter Year.*

Countries.	Average Cost per Mile in		Increase or Decrease in 1884.	
	1874.	1884.	Increase.	Decrease.
	£	£	£	£
United Kingdom	37,078	42,486	5,408	—
Germany	19,860	21,100	1,240	—
France	32,030	27,550	—	4,480
Italy	19,790	19,436	—	354
Belgium	23,000	25,385	2,385	—
Austria	22,560	20,030	—	2,130
United States	12,360	12,792	432	—
Averages	23,090	24,168	—	—

There can be little doubt that the greater cost of British railways, up to a certain point, has been fully justified, or, if not justified, is capable of easy explanation. The heavy expenditure

which has been entailed by land purchase, by parliamentary contests, by the more substantial character of the works and ways, and the greater average cost of British labour, has no doubt largely brought about this result. But it is by no means equally obvious why these several influences, important though they be, should have involved us in an average expenditure per mile constructed that is nearly four times as much as that of American railways, and more than twice as much as the railways of Germany, Italy, or Austria-Hungary. It is still less manifest why English railways should go on adding to the difference in capital cost that had already sufficiently distinguished them from the railways of other countries. This increased average mileage outlay may, no doubt, be defended on the ground that it has been entailed by the necessities of the traffic, or by the reiterated demands of the general public. But even this plea, good though it be up to a certain point, is not an adequate one, since the traffic of other countries has been developed concurrently with that of our own, and in some cases to a still greater extent, without having involved the same enormous increase of capital outlay on already existing lines.

In order that the latter fact may be adequately appreciated, I have prepared two tables (B and C) which show the development of goods and passenger traffic in the principal countries of the world between 1874 and 1884. These tables are summarised in the following :—

Statement showing the Volumes of Goods and Passenger Traffic carried on the Railways of different Countries in 1874 *and* 1884.

Country.	Goods Traffic (1 ton = 1,000).		Increase in 1884 (1 ton = 1,000).	Passengers Carried (1 = 1,000).		Increase in 1884 (1=1,000).
	1874.	1884.		1874.	1884.	
United Kingdom	188,539	259,327	60,788	477,840	694,991	217,151
Prussia	89,298	145,000	55,722	109,570	167,170	57,600
France	58,932	89,056	30,124	121,117	207,171	86,054
Italy	6,700	11,905	5,205	27,320	36,817	9,497
Belgium	25,620	35,609	9,989	45,164	64,460	19,290
Austria	39,950	70,942	30,992	41,955	50,254	8,299
United States	200,000	390,875	190,075	190,000	360,600	170,000
Totals and average	609,019	1,001,898	382,899	1,012,966	1,581,463	568,497

According to these figures, it would appear that there was an increase of 382 millions of tons, or 66 per cent., in the volume of traffic carried within the period dealt with, and an increase of 568,497,000, or 56 per cent., in the number of passengers transported. This may be accepted as convincing evidence of the

steady development of both descriptions of traffic; and upon this fact we are entitled to base a hopeful view of the future. It may be that the development over the last twelve years has been much more considerable than we need expect to see continued. The statistical history of British railways would appear to support such a conclusion. Between 1854 and 1864 the average gross income from British railways increased from 2,510*l.* to 2,660*l.*, or 150*l.* per mile of line open. In the next ten years the increase was 799*l.* per mile of line open, and during the ten years ending 1884 there was only an increase of 130*l.* per mile of line open, so that, as tested by the movement of traffic over decennial periods, the increase has been inconstant.

The increase of traffic in the United States has, however, been more remarkable than anything that has occurred elsewhere, and it may therefore be cited as a notable example of what a judicious policy, designed to stimulate traffic by working on a very narrow margin of profit, is capable of bringing about. The average gross receipts per mile open in that country have been—

	£
In 1871	1,390 per mile
„ '75	1,409 „
„ '80	1,400 „
„ '83	1,424 „

Now, these figures mean a great deal more than appears on the surface. They would have been sufficiently remarkable if they had been the outcome of the same average range of rates and charges over the whole period dealt with, considering that in this interval the mileage of railway open had been more than doubled —that is to say, it had increased from 60,522 to 125,152 miles. But within the same period the average transportation or freight charges on American lines as a whole had been decreased by one-half or even more, so that the same mileage revenue in the period 1880-83 would represent about double the volume of traffic; in other words, if the same rates had been charged in 1883 as in 1871, the average gross receipts per mile would have amounted to nearly 3,000*l.* per open mile, instead of the 1,424*l.* which we have ascertained it to have actually been.*

The facts and considerations already put forward have now brought us face to face with the difficult problem of rates and fares, the means whereby they have been or may be reduced, the

* This is not strictly the case as regards the tonnage carried, which was 2,650 tons per mile in 1871, and 3,322 tons in 1883; but the average distance over which each ton was transported in the latter year was considerably greater, which comes to much the same thing.

results that have generally followed their reduction, and the character and extent of their incidence in various countries.

Let us not seek to mince matters. The average transportation charges may be ascertained for every European country except our own as regards both goods and passenger traffic. In Great Britain the railways, whether by accident or by design, have hitherto contrived to make it impossible for the public to discover the average charges for the transport of either the one or the other for any one railway, or for the country as a whole. The missing link in the chain of evidence—a link which is not withheld in any leading country except our own—is *the number of passengers and the number of tons of goods and mineral traffic transported one mile.* This *data* is supplied as regards Australian and Indian railways.* It is withheld as regards our own country. If, therefore, the railway companies, or any of them, were to assert that the average ton-mile rate is under a penny, we are not in a position to furnish absolute proof to the contrary. We are, on the contrary, altogether in the dark as to whether it is more or less. All we do know is that such concrete examples as may be found by thousands in recently published reports,† justify the view that it is considerably more.

That they manage these things better in the United States is a fact that we cannot afford to ignore. With regard to a number of the principal railways in that country, we have access not only to the average transportation charges per ton per mile, but to the average working expenses and the average net receipts as well. We cannot well exaggerate the importance of this information. If it were available for our own country, or even for one or two of our

* There are several important features in Indian railway accounts that it would be worth while to imitate in England. They show, among other features, the number of passengers carried one mile, distinguishing the several classes, and the number of tons of goods traffic moved one mile, distinguishing the different descriptions of merchandise, such as general merchandise, military stores, railway materials for constructive purposes, coal, live stock, &c. The Indian railway accounts further show the number of carriages of each description employed on each line, which is important as affording the means of judging how far the several descriptions of passenger traffic pays or otherwise. As it is at present, there are no adequate means of estimating whether the passenger traffic of the United Kingdom is not carried on very largely at the expense of the goods traffic, and especially whether the expense of running first class carriages, that are generally more than half empty, is not a source of loss. If, however, the total number of carriages of each class was specifically stated for each country, together with the total train-miles run, and the total receipts, it would be a comparatively easy matter to calculate the factor just referred to. In regard to some leading lines, these *data* are given in the half-yearly reports; but it ought to be given in the official reports of the Board of Trade for the country as a whole.

† Especially the appendix to the report of the select committee of 1881 on railway rates and charges.

principal lines, it would go a long way towards settling some great problems that have hitherto appeared to be all but insoluble.

The charges made for the transport of goods traffic with the operating expenses and the net receipts per ton per mile, as between the years 1870 and 1880, were, as regards some of the principal American railways, as follows:—

Railways.	Receipts.		Expenses.		Profits.	
	1870.	1880.	1870.	1880.	1870.	1880.
	d.	*d.*	*d.*	*d.*	*d.*	*d.*
Pittsburg and Fort Wayne....	0·72	0·45	0·43	0·25	0·29	0·20
Pennsylvania	0·77	0·44	0·49	0·23	0·27	0·20
New York, Lake Erie, and Western	0·66	0·42	0·48	0·26	0·18	0·15
New York Central and Hudson River	0·92	0·44	0·58	0·27	0·35	0·17

These being four of the principal lines in the United States, and carrying collectively nearly one-sixth of all the goods traffic of the country, it is fair to conclude that their action and experience have been typical of those of American railways generally.

These charges have, of course, been varied from time to time, but they may be taken to fairly represent the averages of the same lines since 1880. In some cases indeed the rates have been still further reduced since that time, as, for example, in the case of the New York Central, where the average transportation rate for traffic of all kinds was in 1885 only 0·34*d.* per ton per mile, a figure which is probably less than one-third of the average of the rate charged for goods and mineral traffic in our own country.

What have these remarkable changes in the relations of the railways and the people accomplished for the latter? According to Mr. Edward Atkinson, who has written with remarkable force and intelligence on the economics of this subject, the aggregate receipts from goods traffic in the United States for the years 1883-85 have averaged 106 millions sterling per annum, whereas, at the average rates charged by the New York Central line in the period 1865-69, the annual gross total would have amounted to 250 million pounds. These figures mean, therefore, a difference of about 144 million pounds sterling a year saved to the people of the United States in the cost of moving food, fuel, and the materials for shelter and clothing.*

We can imagine some of our English railway directors rubbing

* In these calculations the dollar has been converted at 4*s.*

their eyes on looking at these figures, and interrogating themselves after the manner of Bret Harte's hero :—

> "Do I sleep, do I dream,
> Do I wander in doubt;
> Are things what they seem,
> Or are visions about."

And it must be fairly confessed that the facts are so astounding as to justify some fear of error; but facts they are, nevertheless.

So far as a judgment may be formed on the average receipts per ton of minerals and merchandise transported, it would appear that, in the case of British railways, there has been a slight abatement of rates within the same period. But the reduction is very trifling; and since it may be due to the shorter average distance over which the traffic has been carried, it would be a mistake to attach great importance to it.*

As we have already seen, the average length of lead in this country may be calculated at twenty miles for minerals, and fifty miles for general merchandise, allowing 1*d.* per ton per mile for the former, and 1½*d.* for the latter. Assuming these figures to be correct, the ton-mile traffic of the United Kingdom in 1885 would come out as :—

3,675,534,000 ton-miles for mineral trains;
3,675,805,000 „ merchandise trains;

making a total of 7,351,339,000 tons carried one mile.

In the United States, the ton-mile movement of traffic is much greater than this, amounting as it did, in 1884, to 44,065 millions of ton-miles. The gross receipts from this traffic amounted to 544½ millions of dollars, being an average of 0·62*d.* per ton per mile transported.

If we divide the ton-mileage calculated for the United Kingdom into the 36,871,945*l.* receipts from goods traffic in 1885, the average cost per ton per mile comes out as 1·2*d.*, being just about double the average ascertained for the United States.

The railway returns for the United Kingdom do not separate the proportions of working expenditure due to passenger and goods traffic expenses respectively. All that we are told is, that the total working expenditure for traffic of all kinds amounted in 1885 to 36¾ millions sterling. If, however, the average working expenditure for goods traffic had been the same as that ascertained

* Between 1872 and 1883, as the appendix shows, the average receipts per ton of merchandise carried on the railways of the United Kingdom fell from 6·9*s.* to 5·5*s.*, being a difference of 1·4*s.*, or 20 per cent. Within the same interval the receipts per ton of minerals carried fell from 1*s.* 11*d.* to 1*s.* 8*d.* per ton, a reduction of only 3*d.*, or 13 per cent.

for the four leading American lines already referred to (that is, about 0·25*d.* per ton per mile), the total outlay involved in the actual transport of the 7,351¼ ton-miles calculated for the United Kingdom in 1885 would have been 7,700,000*l.*

This last figure is necessarily modified by the necessities imposed upon the railway companies in reference to the running of return empties. Mr. Price-Williams has calculated that 90 per cent. of the mineral, and 10 per cent. of the general merchandise trains, must be included in this category. How to deal with these qualifying figures is, even to experts, a veritable *pons asinorum.*

We cannot assume that the transport of the return empties is as expensive a matter as the transport of the equivalent live load, since the gross weight is much less, and there is no expense incurred in handling. It will not do, therefore, to add 90 per cent. to the mineral, and 10 per cent. to the merchandise ton-mileage, which would appear to be the shortest cut to the desired result. It is probable, I think, that 40 per cent. all round would be a sufficient allowance for return empties; but this figure is necessarily empirical, and must be taken for what it is worth. If it is approximately correct, we should find that the total cost involved in working the goods traffic of this country, at the ascertained rates of leading American lines, would amount to 10,780,000*l.*, and as the total gross receipts from goods traffic amount to about 37 millions sterling annually, the profit from this source of revenue ought to be highly respectable. Railway directors are, of course, not likely to admit that the cases of British and American goods traffic are at all parallel, and to a large extent they are right. The main difference is the greater length of lead in the United States, which is perhaps three times that of our own country. But in nearly every other respect, the conditions of working are capable of being made much more parallel than they are at present. The means that have enabled the American lines, as we have seen, to reduce the cost of working, per ton-mile, by something like one half within a period of ten or twelve years, are surely equally open to, and capable of being applied by, British railways. There is no very manifest reason why the railways of this country should not, like the American lines, adopt much larger train-loads, reduce the tare carried relatively to the live-load, get a much greater annual mileage out of their rolling stock, and adopt other economies that have tended to make American lines what they are at the present day. The exceptionally large mineral traffic carried on British railways, is, indeed, peculiarly favourable to the adoption of most of these sources of economy.

So far as the nations of continental Europe are concerned, we have no need to go into details. Suffice it to say that the average

ton-mile rates in Belgium, Germany, and Holland, are much under our own, and these are the nations from whose competition we appear to have most to fear.*

There is likely to be a doubt in the minds of not a few as to the possibility of the railway corporations of the United States making the enormous reductions of rates to which we have referred consistently with the maintenance of solvency. This is unquestionably a fair point to raise, and I have endeavoured to anticipate the possible objection by making an analysis of the railways of each State, showing the total nominal capital, the total cost of the road and its equipment in each case, the gross and net earnings, and the percentage of the net earnings on the actual cost of the lines. On examining this statement, which will be found in Appendix H, it will be seen that in fifteen States the net earnings in 1883 were equal to paying a dividend of 5 per cent. and upwards on the cost of the construction and equipment of the lines. In sixteen other States, the dividends varied from 3 to 5 per cent. on the same cost; and in only eight States or territories were the net earnings insufficient to pay 3 per cent. on such cost.†

The question is not infrequently raised whether goods or passenger traffic is the more remunerative. The conditions under which the two descriptions of traffic are carried on vary so greatly that it is quite possible to conceive of one yielding a large profit, while the other may result in a loss. Some have contended that passengers are a much more considerable source of profit than merchandise, on the ground that, relatively to the weight carried, a much higher price is charged for passenger traffic. This is, no doubt, in some degree the case. A ton of passengers will represent from fifteen to twenty travellers at an average of not less than a penny per mile, so that passengers, weight for weight, will yield from twelve to fifteen times the income derived from goods traffic. But it must not be forgotten that in working passenger traffic the expenses are much greater; that the net or paying load carried is always much less, relatively to the gross load; and that the higher average rate of speed compels a much higher cost for maintenance, &c., relatively to results. Hence in many cases it costs more

* The average rates for the transport of minerals and merchandise together were, in 1883—

	d.	
In Germany.....	0·85	per ton per mile.
„ Belgium	0·77	„
„ Holland	0·76	„
„ Luxembourg..	0·96	„

† It is important to distinguish between the actual cost of the road and equipment and the total nominal capital, since the latter is often very largely made up of "watered" stocks, which form no necessary part of the cost of the undertakings.

to transport a single passenger one mile than it does to carry a ton of traffic the same distance.*

On the other hand, however, it should be observed that the mineral traffic usually occupies the line for a much longer period than the passenger; that the passenger carriages are, or ought to be, always running, while mineral and merchandise wagons are, perhaps, less than half their time in motion; and, finally, that minerals and merchandise involve a great deal of labour in loading, unloading, covering, collecting and delivering, &c., whereas passengers load and unload, collect and deliver themselves.

But whether passenger traffic as a whole, or goods traffic as a whole, is the more remunerative, it is easy to show that, so far as passenger traffic is remunerative at all, it is so mainly, if not entirely, as regards the third class. This fact may be tested by an examination of the financial results of working first and third class carriages on the Midland and Great Western Railways, which are not usually regarded as badly managed lines. The official returns of receipts on these systems from first, second, and third class traffic, and the average numbers of passengers carried by each, show the following results:—

	Midland Railway.		Great Western.	
	1876.	1885.	1876.	1885.
Average receipts per carriage—	£	£	£	£
First class	613	330	711	513
Second ,,	—	—	1,113	973
Third ,,	775	885	1,097	1,038
Average number of passengers carried—	Number.	Number.	Number.	Number.
First class	4,195	1,944	3,938	2,800
Second ,,	—	—	12,950	11,106
Third ,,	16,000	17,765	23,068	21,647

These figures may or may not be corroborated by those that would be brought out by a similar analysis of the accounts of the other leading companies. It is, however, more than likely that they are only typical of the country as a whole. In the absence of details of the numbers of carriages of each class on Continental lines, we are unable to make any comparison of one country with another.

* A recent report of the Pennsylvania Railway Company shows that the earnings per passenger per mile average 1·12*d.*, as compared with 0·44*d.* for a ton of goods traffic; the working expenses, 0·80*d.*, as compared with 0·27*d.*; and the net receipts, 0·33*d.*, as compared with 0·20*d.*

Such as they are, the figures show, as regards the Midland Railway, the following remarkable facts:—

That between 1876 and 1885 the average receipts from each first class carriage decreased by 283*l.* per annum, or 46 per cent.

That in the same interval the receipts from each third class carriage increased by 110*l.*, or 14 per cent.

That between 1876 and 1885 the average number of passengers carried in each first class carriage decreased by 2,251, or 54 per cent.

That within the same interval the average number of passengers for each third class carriage increased by 1,765, or about 10 per cent.

That in 1885 each third class carriage earned nearly three times as much as each first class, and carried nine times as many passengers.*

Another important fact that appears to be clearly established by these figures is that second class carriages are a greater source of profit than first class, and not far short of being as remunerative as carriages of the third class. It will be observed that on the Great Western Railway the average receipts per second class carriage fell from 1,113*l.* to 973*l.* per annum between 1876 and 1885, while first class vehicles show a concurrent fall from 711*l.* to 513*l.* At the latter date each second class carriage had earned 460*l.* per annum, or about 90 per cent. more than each first class carriage, which does not appear to support the not uncommon opinion that second class vehicles are infinitely less productive, and ought, therefore, to be abolished. That this is not the opinion of railway managers generally is shown by the limited extent to which they have followed the example of the Midland, in getting rid of the second class entirely.

Before concluding, I desire to make some observations in reference to the subject of railway statistics—not in a carping or fault-finding spirit, but with a view to the friendly consideration of those concerned.

It cannot be said that the summary of railway statistics with which the British public is supplied by the Board of Trade in the annual "Statistical Abstract of the Principal and other Foreign

* Both the Midland and the Great Western Railways have a large number of composite carriages. These introduce a disturbing element, which has been dealt with by dividing the composites equally between first and third class in the case of the Midland, and between first, second, and third class in the case of the Great Western. This division is not likely to be perfectly accurate, but the limits of possible error will not be very wide.

"Countries," is quite what it ought to be. On the contrary, it is extremely difficult to make such a use of the figures given as to establish anything like reliable comparisons of one period or one country with another. The returns of no two countries are constructed on the same plan, and it looks as if each table had been drawn up by a different abstractor, without any reference to the control of a superintendent whose business should be to see that there is at any rate some degree of parallelism and uniformity in the figures. Nor is this all. The figures for the same country are not constructed on the same plan from one year to another. Thus, in the case of the United States, we find in the "Abstract" for 1879-80 that the second item in the table is "the distance travelled "by locomotives," but in that for 1884 no such entry occurs. In the former year, we have the total working expenses; in the latter, nothing of the kind. Many similar cases might be cited.

What is now more particularly required is, that the Board of Trade should undertake the consideration of how far the *data* recorded in the "Statistical Abstracts" can be tabulated on an uniform plan. There is no real difficulty in the way of accomplishing this result. All the railways in Europe now keep their accounts on a tolerably uniform system, so far as essential *data* are concerned. They all show—

1. The cost of construction.
2. The gross and net revenue.
3. The rolling stock employed.
4. The number of passengers carried and receipts therefrom.
5. The tons of goods carried and the receipts therefrom.
6. The ton-mile passenger and goods traffic.
7. The working expenses.
8. The percentage of net receipts on cost of construction.
9. The number, causes, and results of accidents.

And many of them, especially the German and Belgian lines, furnish fuller information still. But if the foregoing details were recorded for every country dealt with in the "Statistical "Abstract," there would be no need to complain of want of essential facts, since no further details would be required to enable railway authorities and shareholders to get at the actual circumstances of the railways of each country.

APPENDIX.

A.—*Statement showing the Mileage of Railways Open in different Countries at the end of* 1883, *the Total Cost of Construction, and the Average Cost per Mile.*

Country.	Miles Open.	Total Capital Expenditure, 1 = 1,000.	Average Expenditure per Mile.
		£	£
Germany	22,423	476,168	21,236
Austria-Hungary	12,846	316,800	25,266
Belgium	2,700	68,522	25,385
Denmark	1,005	7,320	7,283
France	18,725	488,767	27,704
Italy	5,693	111,500	19,585
Luxemburg	92	1,781	19,358
Norway	822	5,735	6,976
Holland	1,132	22,213	19,631
Roumania	861	16,840	19,558
Russia	14,478	241,021	16,647
Finland	516	2,802	5,430
Switzerland	1,673	37,760	22,570
United States	120,551	1,443,171	11,970
Canada	10,243	125,200	12,223
India	10,832	143,000	13,202
New South Wales	1,321	16,915	12,810
Cape Colony	1,453	13,392	9,217
England	13,215	650,946	49,257
Scotland	2,964	98,531	33,242
Ireland	2,502	35,444	14,106
United Kingdom	18,681	784,921	42,017

B.—*Statement showing the Composition of the Total Average Expenditure per Train-Mile on the Principal Railways of the United Kingdom.*

Railway.	Maintenance of Way.	Locomotive Power.	Repairs and Renewals.	Traffic Charges.	Rates, Taxes, &c.	General Charges.	Miscellaneous.	Total per Train-Mile.
	d.	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*	*d.*
L. and N. Western	6·07	7·86	2·34	12·21	1·88	1·55	0·92	32·83
Midland	4·48	7·67	3·64	9·38	1·50	1·04	0·55	28·26
North Eastern	6·19	10·75	4·35	9·17	1·96	1·12	0·34	33·89
South Eastern	4·97	8·61	2·79	9·80	4·22	2·90	2·00	35·29
Great Eastern	4·98	8·56	2·63	10·19	1·93	1·32	1·01	30·62
„ Western	6·90	7·69	2·43	8·62	2·23	1·21	0·59	29·67
G. S. and W. of Ireland	8·13	9·09	2·95	9·47	2·49	0·84	0·68	33·65
Lancashire and Yorkshire	6·23	8·10	3·94	13·21	2·12	1·43	0·50	35·53
L. B. and S. Coast	4·90	8·97	2·48	8·99	3·48	1·28	1·74	31·85
M. S. and L.	4·40	7·13	2·81	11·88	1·80	1·86	2·62	32·51
Caledonian	5·04	8·13	3·99	8·50	1·65	1·20	1·62	30·13
Great Northern	4·60	7·62	2·46	9·57	1·81	1·39	0·67	28·12

C.—*Statement showing the Average Cost per Mile Open of Railways in the Principal European Countries, &c.*, 1872-85.

Year.	United Kingdom.	Germany.	France.	Italy.	Belgium.	Austria-Hungary.	United States.
	£	£	£	£	£	£	£
1872.....	35,984	—	33,260	19,944	—	21,028	9,938
'73.....	36,574	19,506	31,900	19,332	—	21,380*	11,216
'74.....	37,078	19,860	32,030	—	23,000	18,840*	12,114
'75.....	37,833	20,066	28,400	19,790	22,952	18,690	12,360
'76.....	39,012	21,082	27,960	19,745	22,690	18,520	12,090
'77.....	39,472	21,339	27,590	19,620	23,200	18,658	12,024
'78.....	40,301	21,157	26,976	19,400	23,320	18,541	11,690
'79.....	40,518	21,044	27,280	19,714	24,053	18,433	12,027
'80.....	40,613	21,084	28,450	19,600	24,395	18,500	12,213
'81.....	41,019	21,165	28,255	19,663	24,435	21,850	12,634
'82.....	41,605	21,254	27,970	19,856	24,980	21,041	12,772
'83.....	42,017	21,160	27,700	19,436	25,265	20,897	12,875
'84.....	42,486	21,100	27,550	—	25,385	20,430	12,792
'85.....	42,561	—	—	—	—	—	—

* These figures are taken from the "Statistical Abstract of the Principal "and other Foreign Countries," but they require some explanation that does not appear on the face of the returns, since the lower average cost per mile in 1874 is *not* accounted for by the lower cost of the railways constructed during the previous twelve months.

D.—*Statement showing the Numbers of Passengers Carried on the Railways of different Countries*, 1874-84 (1 = 1,000).

Year.	United Kingdom.	Prussia.	France.	Austria-Hungary.	Belgium.	Italy.	United States.
1874.....	477,840	109,570	121,117	41,955	45,164	27,320	190,000
'75.....	507,975	115,393	131,312	41,348	49,056	27,951	191,000
'76.....	534,494	116,452	136,987	40,756	51,429	28,076	—
'77.....	549,541	114,805	138,839	37,856	52,000	28,055	—
'78.....	565,024	113,792	152,806	38,710	53,502	28,954	—
'79.....	562,732	114,402	150,525	39,486	53,939	30,405	—
'80.....	603,885	124,383	165,105	40,455	56,306	32,491	—
'81.....	626,030	—	179,729	42,818	56,360	34,040	—
'82.....	654,838	—	194,872	47,211	57,239	34,372	298,030
'83.....	683,718	167,170	207,171	50,254	61,316	36,817	312,687
'84.....	694,991	—	—	—	64,460	—	334,571

E.—*Statement showing the Number of Tons of Goods Traffic Carried in different Countries*, 1874-84 (1 = 1,000).

Year.	England and Wales.	Prussia.	France.	Austria-Hungary.	United States.	Belgium.	Italy.
1874.....	160,921	—	—	39,950	200,000	—	—
'75.....	168,965	89,278	58,932	42,143	202,000	25,620	6,700
'76.....	173,691	91,354	61,837	45,056	200,000	26,977	7,150
'77.....	178,871	92,557	61,608	49,271	—	27,017	7,486
'78.....	175,243	96,841	63,087	50,392	—	28,343	7,507
'79.....	179,676	105,114	68,987	52,976	—	30,062	8,372
'80.....	200,392	120,120	80,774	54,354	—	33,198	9,329
'81.....	209,532	—	86,647	54,634	—	34,549	9,838
'82.....	217,494	—	88,745	64,754	360,490	36,503	10,473
'83.....	225,909	—	89,056	70,942	400,453	37,090	11,905
'84.....	219,974	—	—	—	390,075	35,609	—

F.—*Statement showing the Total Volume of General Merchandise Traffic Carried on the Railways of England and Wales, the Total Receipts therefrom, and the Average Receipts per Ton.*

Year.	Tons of Merchandise Carried. 1 = 1,000.	Total Receipts therefrom. 1 = 1,000.	Average Receipts per Ton.
		£	
1872.....	49,194	16,687	6·9
'74.....	52,140	15,537	5·9
'76.....	54,544	16,008	5·8
'78.....	54,670	16,009	5·8
'80.....	59,427	16,923	5·6
'81.....	60,513	17,317	5·7
'82.....	63,647	17,728	5·5
'83.....	65,387	18,028	5·5
'84.....	64,542	17,750	5·5
'85.....	62,528	17,313	5·5

G.—*Statement showing the Number of Train-Miles Run by Goods and Mineral Trains in the United Kingdom, the Receipts from Goods Traffic, and the Average Receipts per Train-Mile.*

Year.	Goods Train-Miles.	Receipts from Goods Traffic.	Average Receipts per Goods Train-Mile.
		£	*s.*
1872.....	94,693,818	29,016,559	6·1
'74.....	100,025,939	32,005,883	6·3
'76.....	106,139,327	33,754,317	6·3
'78.....	106,034,197	33,564,761	6·4
'80.....	115,408,845	35,761,303	6·1
'82.....	123,098,604	37,740,315	5·1
'84.....	126,672,783	37,670,595	5·9
'85.....	125,928,338	36,891,945	5·8

H.—*Statement showing the Statistical Position and Financial Results of American Railways,* 1883-84.

1 States.	2 Total Line Miles.	3 Total Capital. 1 = 1,000 dols.	4 Cost of Road and Equipment. 1 = 1,000 dols	5 Cost of Road and Equipment per Mile. Dols.	6 Gross Earnings. 1 = 1,000 dols.	7 Net Earnings. 1 = 1,000 dols.	8 Percentage of Net Earnings on Cost of Road and Equipment (Col. 4).
New England States—							Per cnt.
Maine	1,161	41,890	41,185	35,000	4,866	1,377	2
New Hampton	893	27,207	26,952	30,000	4,162	1,203	4
Vermont	869	41,714	40,132	46,000	4,523	1,042	3
Massachusetts	2,278	195,624	184,227	80,001	32,661	8,595	5
Rhode Island	147	6,907	6,260	42,000	1,490	486	8
Connecticut	974	49,976	47,198	48,000	11,453	2,401	5
Middle States—							
New York	7,234	830,450	807,965	111,000	71,694	25,656	3
,, Jersey	1,844	235,568	195,454	106,000	27,390	8,879	5
Pennsylvania	665	823,786	471,900	709,000	111,842	48,198	10
Delaware	220	11,958	6,434	29,000	739	194	3
Maryland	1,166	88,784	98,382	84,000	14,136	6,224	6
West Virginia	400	21,989	17,503	43,000	922	308	2
Virginia	2,808	196,435	167,855	59,000	13,984	520	—
North Carolina	1,617	44,414	43,188	26,000	3,426	873	2
South ,,	1,592	43,191	41,662	26,000	5,215	1,501	4
Georgia	2,887	73,929	64,689	22,000	9,526	2,934	5
Florida	1,063	31,206	26,728	25,000	1,426	473	2
Alabama	1,892	70,845	63,754	33,000	7,363	2,228	4
Mississippi	750	43,672	42,092	56,000	1,213	466	1
Louisiana	1,453	79,270	79,393	54,000	5,235	2,538	3
Tennessee	2,264	136,524	122,368	54,000	9,517	3,461	3
Kentucky	2,535	168,516	141,795	55,001	11,555	4,660	3
W. & S. W. States, &c.–							
Ohio	9,032	765,983	725,855	80,000	67,329	22,751	3
Michigan	4,777	193,437	180,202	37,000	38,118	8,547	5
Indiana	6,454	302,733	278,687	43,000	36,927	8,590	3
Illinois	12,882	606,870	588,481	45,000	98,072	41,817	7
Wisconsin	6,297	222,640	221,506	35,000	27,469	11,014	5
Minnesota	5,273	319,442	307,956	58,000	25,681	10,020	3
Dakota	237	8,766	8,766	37,000	—	—	—
Iowa	3,194	116,802	109,055	34,000	6,317	1,995	2
Nebraska	2,841	208,412	169,256	59,000	21,648	10,916	5
Kansas	3,734	165,021	161,627	43,000	21,453	10,029	6
Missouri	6,396	365,285	308,884	48,000	34,523	15,154	5
Arkansas	1,059	41,328	41,128	38,000	1,666	563	1
Texas	5,804	242,179	225,471	38,000	21,459	763	—
Colorado	2,198	97,173	89,305	40,000	10,888	3,430	4
Wyoming	519	24,962	24,962	48,000	918	356	1
California	3,375	299,140	295,137	87,000	28,451	9,284	3
New Mexico	880	89,791	59,401	67,000	—	—	—
Arizona	384	30,295	—	—	—	—	—
Utah	1,285	40,428	39,973	31,000	3,836	1,853	5
Nevada	502	27,133	23,794	47,000	109	19	—
Oregon	1,021	65,608	67,264	65,001	5,946	2,896	4
Washington T.	37	885	885	23,001	117	68	8

Discussion *on* Mr. Jeans's Paper.

The Chairman (R. Biddulph Martin, Esq., M.A.) said he wished to express his own great regret and the regret which they must all feel at the absence of their President, Mr. Goschen, who was at that moment confined to his house through illness. They would have been glad to have the benefit of Mr. Goschen's experience upon the paper about to be read, which was one of considerable importance, not only from the manner in which it had been drawn up, but also from the results to which it pointed. He hoped that at a very early date Mr. Goschen would be found in that chair, and would be able to give them the presidential address to which they looked forward with great interest.

(The Paper was then read.)

The Chairman said they were very much indebted to the author for the manner in which he had placed before them the facts, which were interesting in themselves and more interesting as leading to the hope of some practical result. The interest attaching to all these statistics was, that they might lead to an improvement in the condition of railway travelling, which good as it was, could not yet by any means be said to be perfect. No doubt competition was the backbone of their success, especially in the north and centre of England, but the southern lines still left a good deal to be desired. At the same time there were many points in which statistics without some outside light did not convey the whole truth. The item of cost per mile of English railways was one of great importance and difficulty, because England was the pioneer country, and the work had to be commenced under conditions of ignorance. There was a story current in his neighbourhood, where he was a neighbour of that eminent contractor the late Mr. Wythes, which illustrated this. In the early days of railway making Mr. Wythes as a beginner and an unknown man, tendered for a contract for an important piece of railway work. He at first thought that about 18,000*l.* would be a remunerative price, and on consulting his wife they agreed to put in a tender for 20,000*l.* The story went that in thinking over it they agreed that it would not be well to run any risk, and that 40,000*l.* would be a safer figure; but sleeping over it, in the morning the wife like a prudent lady said, "I think you had better say 80,000*l.* in order to be on the safe side." He took his wife's advice, and his tender for 80,000*l.* was by far the lowest, and being accepted was the foundation of a fortune and reputation second to none among railway contractors. The experience learned in England was not thrown away in other countries, and when railways were constructed abroad, contractors had a better knowledge of what they were about than the early pioneers of railways in England. They had to pay for experience, and could not be the

foremost nation in the world for enterprise and ingenuity without having to do so. The cost of metropolitan lines was until lately an unique experience, and it was useless to compare the cost of a line between Charing Cross and Cannon Street or across London with one in the wilds of Finland or the plains of India. The conditions were altogether so different that it was impossible to draw from them any theory as to what the proper cost of a line should be, or as to the traffic which would give a remunerative dividend. Another point was, that many of the English lines during the railway mania were made with capital not at all representing its face value; for those who knew anything about the construction, for example, of the Chatham and Dover Railway, would know that the figures which stood as the capital account by no means represented the money actually expended. These conditions made it difficult to lay down an average cost on which to calculate what the average earnings ought to be; and possibly if the line had been constructed for the figures that it absolutely cost, it would have very greatly influenced the tables that the author had placed before them. He contended that no railway ought to earn a shilling where it could earn two sixpences, because every person who could be induced to travel as a passenger, and every pound of merchandise carried, was conducive to the carriage of another passenger or another pound of merchandise, and the more they could get passengers to travel, the more they would fill up their trains. The object of railway managers should be to make railway conveyance as much of an excursion as possible, giving everyone an inducement to the utmost possible extent, and throw also the whole of what was called excursion traffic into every day traffic. Looking at the enormous amount of dead weight that was carried, they would see how impossible it was to have their dead weight diminished so that facilities might be given for personal travelling at a more reasonable rate and with greater convenience. He was totally opposed to any unnecessary interference on the part of Government or the Board of Trade with the management of railways, and would trust entirely to the competition of the individual lines to give the public the greatest possible facilities. But notwithstanding this, and especially where there was no competition, he thought there should be an adequate inspection of railways, of stations, permanent way, and rolling stock, in order to secure their safety and convenience. On the one hand he wished to see the railway companies earning and paying good dividends to their shareholders, and on the other hand consulting the interests of the public in every way, and developing traffic wherever they possibly could. They would agree with him in thanking Mr. Jeans for calling attention to this very important subject, and in hoping that the paper would bear fruit in the relations it might lead to between the companies and their customers.

The Right Hon. A. J. Mundella, M.P., said he did not know that he had any reason to complain of anything that Mr. Jeans had advanced. What he had to say about railways had been said at great length in another place, and he might have very soon to

deal with the question again. He therefore wished to speak with great reservation as to any future legislation. He could not say that he entirely agreed with the chairman, who seemed to think that the less the Board of Trade interfered with railways the better, and that public interests would be best cared for if they were left to the private competition of the railways themselves. If the past history of railways would maintain that view of the question he had nothing more to say, but he did not think that was the general opinion. He agreed that Government should interfere as little as possible with the trading community, but it must be borne in mind that railways enjoyed monopolies awarded to them under special conditions, and it was in the interest of the public that the legislature should see that the railways fulfilled their obligations, and that everything was done to remove impediments to the development of traffic, or to the freest and cheapest transmission of the merchandise as well as the passengers of the country. It was only fair to bear in mind, as Mr. Jeans had said, that the initial cost of railways in this country was much greater than that in other countries, owing, in some respects, as the chairman had explained, to the cost which always fell upon the pioneers in any new enterprise. But that was not the only factor. Another item was the great cost of land, and the very foolish and blind oppositions that were made to the introduction of railways by land owners, who were more benefited than any other class of the community by those railways. Another very deplorable item was the tremendous cost of parliamentary expenses. These things, taken together, made it very difficult for the railway companies, having such a large capital account, to grant all those facilities and reductions of rates which were given in some other countries. To begin with, they had say 800 millions invested in railways, two-thirds of which was on debenture or preference stock, and only one-third on ordinary shares. The ordinary shareholders were not in receipt of large dividends. They had to face the fact that their railways cost 42,000*l.* a mile, and that the working expenses were higher than in other countries. He did not know why they should be; material was cheaper and wages were lower here than in the United States, and therefore he could not see why they should be higher; but Mr. Price, of the Railway Commission, was present, and would no doubt be able to throw some light upon the cost of working. Still they had to face the great first cost of the railways, 42,000*l.* a mile, as against 1,200*l.* in the colonies, 13,000*l.* or 14,000*l.* in the United States, and about 20,000*l.* in France, Germany, and Italy. The author seemed to think that future economy in working was to be obtained by greater centralisation, and by better arrangement of trains. No doubt there was a great deal of very foolish competition and excessive expenditure for want of better arrangements between the different companies. No one could believe that it was necessary that they should have a train from and to Liverpool every hour, or that there should be an excessive number of trains running one-third full. No doubt a great deal of saving might be effected by more concert between the different companies. The only hope

they could have for diminished charges was that the railways should be liberal in their dealings with the public, and should develop the traffic of the country in the future more than they had done in the past. The railways had the same field that the post office and the parcels post had, and every undertaking that had increased the facilities of the public, and reduced the cost, had ultimately profited thereby. The more railway companies within certain limits were able to give facilities for the public, and the lower they were able to charge for the carriage of passengers and goods, the greater would be the advantage which the general public and shareholders would reap from such arrangements. He was not prepared to say how far the State should interfere to settle the question of rates. There was already a commission which dealt with such matters, and a good deal more might yet be done in that direction. There was one point in which he quite agreed with the author, that they wanted more light upon the whole question. Mr. Jeans had suggested that the Board of Trade might give better statistics; the Board of Trade gave all the statistics it could obtain, and the object of any measure introduced by any government would be to require better statistics to be furnished by the railway companies. It would be a very short sighted policy to take any step in the direction of confiscating capital, or injuring railways, for it was not in that direction that the country was to be benefited. It was by a wise and liberal administration on the part of the railways themselves, by greater concentration, and by greater facilities to the public, and he hoped that they would leave the Board of Trade and the legislature very little to do by anticipating a great deal which they knew must be done, unless the companies took the matter up themselves. He had just returned from the continent, and he found everywhere that the development of localities and industries was much better cared for than was the case in England. There were districts in this country that had suffered, and were still suffering, because railways had not adopted a wise policy with respect to them. Charging as much as the traffic would bear was not the way to develop it. The better course would be to see how much traffic they could bring to their company, and at how low a cost they could carry it with advantage to themselves. He hoped that something might be done to facilitate a better understanding betwixt railways and the public, and that when they came to legislate upon the question there would be an absence of bad feeling, and a readiness on both sides to meet the just and reasonable demands which were being made by the commercial and agricultural communities.

Mr. William P. Price (a railway commissioner) said they would agree that his position was rather a peculiar one. On all the matters before them which they might discuss freely he was, or might possibly be, a judge, and it was therefore beyond all other things important that he should not commit himself to any opinion that might affect his freedom of decision at some future time. And in point of fact he really could not claim to be in any

way whatever what his friend Mr. Mundella had called an expert in this matter. Thirteen or fourteen years ago no doubt he was, but the formulas applied to railway working in those days were necessarily displaced by much more recent and accurate formulas in reference to the condition of things with which they now had to deal. With respect to the very general question of the relative cost of travelling in this and other countries, he was not prepared to admit that they did travel more economically in any other country with which he was acquainted than in England, if only they took into consideration this fact, that they paid for their journeys not only in money but in time. In this country time was of very great value, and he was inclined to think that if they were to take the cost of the longest journey that was travelled in England, say from London to Aberdeen or Inverness, and to compare that with the cost of travelling a similar distance in France or Germany, they would find that to reduce the two journeys to the same cost per mile, they would only have to put a very moderate sum indeed upon the time saved in this country, as compared with the time occupied abroad. A good deal had been said as to the initial cost of railways, which was due no doubt to the very much larger sum paid for land, and worse than that to the enormous amounts paid for compensation, and to get rid of parliamentary oppositions; that was the most odious of all the charges with which railway companies had been burdened. They had only themselves to thank for it. It was the act of their own representatives which had enabled these heavy charges to be made, and all they could do now was to sit down and bear the burden of their own folly. The same thing applied to the cost of parliamentary proceedings, for no doubt very much more simple processes might have been devised, by which companies should have been authorised to make railways, than those which had led to such very heavy legal expenses. One of the most unsatisfactory parts of the business was the uncertainty of the decisions of parliamentary committees on the merits of different applications to them, for as he had stated many years ago, he was convinced that the company of which he was formerly chairman had frequently succeeded where they ought to have failed, and frequently failed where they ought to have succeeded. He was certain of this, that some of the lines which looking back from this distance of time he believed to have been the most useful that they ever promoted, were rejected for reasons which he never could conceive, and in many other cases where from circumstances they had to bring forward lines of which they thought very little themselves they succeeded, although he never knew why the powers that they had asked for were given to them. Another point in connection with the railway system of this country as compared with other countries was this: he remembered very well that when France began to create her railway system, one of the first things done was to have a systematic survey made of the whole country, and to plan out the network of railways which should be authorised to be constructed. The consequence was the early railways in France were so designed as to accommodate the largest number of passengers and

the largest tonnage of goods at the smallest possible cost. In this country, on the contrary, the railway system was devised by the local necessities of certain districts; lines were made here and there, and then by degrees put together, and so in a certain sort of way a kind of system had been the result; but that system had been a mere matter of accident and not of general design. Taking Paris as a centre, there was only one railway by which they could travel to each of different places on the frontier, and only by two trains in the twenty-four hours, instead of by eight or nine as here. The result was that the trains were very nearly always full. Contrasting that with the travelling in this country, and taking into consideration the comfort and convenience of having so many trains in the day, and so many different routes by which they could travel, he thought that they must be prepared to pay for these luxuries. He was very pleased to have had the opportunity of hearing the paper, and only regretted that the peculiarity of his position forbade him to take that part in the discussion which he would otherwise have done with very great satisfaction.

Mr. G. Baden-Powell, M.P., said the paper was of extreme public value, and well expressed the problem they had to consider, viz., on the one hand to promote if possible inexpensive transportation facilities, and on the other hand to carry out a profitable commercial undertaking. At first sight these two objects seemed very contradictory, and he was not much encouraged to believe that they were arriving at any decision which could be satisfactory, at all events at present. The only remedy suggested was, that trains should be more closely packed, and that there should be an increase of traffic. The facts brought forward by the author were very inadequate; in the first place, he had been unable to procure sufficient details which could be classified to any practical purpose; and next he had not been able to classify his railway receipts and expenditure and cost of construction according to areas, which involved the question of comparative density of population. As to the first cost of railways, especially in the United States, it was well known that the present nominal capital did not in any way accurately measure the money expended in actual construction. In other ways also there was a lamentable dearth of facts or of argument as to facts, and this paper would do good if only to show the Government, and legislature, and public that in any legislation extreme caution was very necessary, because we knew so little as yet as to the full details of fact.

Mr. Tomlinson said that the author's statistics were not at all satisfactory. The statements, so far as they were figures, were, he did not doubt, perfectly correct, but when dealt with as methods of comparison were very erroneous and misleading; as when figures are used for purpose of comparison, it was of all things necessary to get comparable things to deal with, and this the author, in his opinion, had certainly failed to do. To compare the cost of the construction of English railways with those of the United States was by the method adopted by the author of the paper an impossi-

bility. Besides the cost of land and parliamentary and law charges referred to by a previous speaker, there were many other very wide distinctions between the two. The stations and station accommodation on English railways in all large towns had to be taken into account, and in almost every large town the stations and other building accommodation had had to be largely supplemented, not only by the purchase of land, but of all the buildings which were on it, and the stations themselves often taken down and entirely rebuilt. In many parts of the country too duplicate lines had to be provided in some cases to as many as six or more running lines, which by the author was taken as a mile of railway. The accommodation bridges, over or under, the fencing and guarding of the railway, tunnels, bridges, and viaducts, the outlay on the locking of signals, &c., and electric telegraph, was a serious source of expense. The latter, perfectly necessary in and about stations, and especially near London and other large towns, could be set down at from 4,000*l.* to 5,000*l.* a mile. A single roadside station would cost from 500*l.* to 600*l.* Again, the average cost of English railways was got at by including the metropolitan lines, which on the whole it would certainly be safe to take at from 450,000*l.* to 500,000*l.* a mile. The "Metropolitan" cost 860,000*l.* per mile. Besides a host of other things stated by the author of the paper. To compare all this with the cost of construction of American railways, which were to a large extent of what is called "single track," with little or no station or building accommodation, no platforms or roofs, no fences, tunnels, bridges, or things required by the Board of Trade in England, is simply impossible. Even the bridges which were originally put up were of light structure and principally of wood, but which the Americans themselves are finding it necessary to renew with iron as much stronger; while here, with the exception of alterations required by additions, all things are as they were put up forty years ago. As regards the cost of working in comparison with other countries, if like is to compared with like, there can be no doubt that the English railways will compare with any or all, when the speed and accommodation are taken into account. The speed abroad in miles per hour, even with express trains, is slower than in England, and if the average of all services be taken, it is immensely greater than any other country, to say nothing of the greater number of trains in a day. The accommodation too is of a very superior kind, and we should not be content or even tolerate the plan adopted, say in France, where we are put into a room and counted while the train is provided to just fit the number of passengers, and you find that you are packed as close as possible even in the heat of summer. The author in the matter of cost of working has not proper data to make a proper comparison, as the work done by the engines besides "train mileage" is so widely different. On the North Eastern the shunting and non-paying mileage is a serious matter, and on the Lancashire and Yorkshire amounts to 70 per cent. of the total train mileage, and on the Taff Vale it amounts to 90 per cent., while on other railways it varies from 20 to 40 per cent. As regards the "carriage and waggon repairs and renewals," on the North Eastern all the waggons are found by the company, and on

no other line is this the case, therefore to compare that item with other companies, as is done by the author, is totally wrong, as no true comparison can be made. The author has himself had to admit in his paper that many of the figures he compares are not proper comparisons, and yet he all through seems to want to find fault with what he has not material to deal with and compare properly, and owing to the varied conditions it will be impossible to get. It will require a great deal more information before we can admit that, all things taken into consideration we in England are behind any of the foreign countries in railway construction, maintenance, or working.

Mr. Barton Wright having made a few remarks,

Mr. Lionel L. Cohen, M.P., said they had not yet alluded to one of the causes of the difference between the cost of railways in this country and abroad. A movement was continually progressing abroad, especially in Germany, and also to a great extent in Italy, Switzerland, and Belgium, one which he should like to see followed here, for making cheap lines of railway working at low rates of speed. In Germany these were generally called agricultural or mineral lines, and they apparently reduced the aggregate cost of the whole system of railways. He did not know whether Mr. Jeans had taken that into account, but that was a factor which was yearly becoming of increasing importance. The expensive precautions and requirements, and the considerably heavier character of the line required in those railways constructed up to the Board of Trade standard for passenger traffic at high rates of speed were not necessary on these cheaper lines, and if they should ever be introduced in this country and in the remoter parts of the kingdom, and especially in Ireland, they would bring down the average cost of the railways here to some nearer relation to the cost of railways abroad. There was an advantage on the other side which had not been laid stress upon. The great proportion of the capital raised in this country as preference or debenture capital, was raised at much lower rates of interest than those at which it could be raised abroad, and if it were not for the clumsy restrictions of the transfer duties the capital could be obtained at still lower rates. He did not think that as a general rule the State should interfere with the working of the railways, being satisfied that the principle of leaving the trading class alone to do their own business in their own way was the best; but where the companies obtained a monopoly, it was necessary that the State should charge that monopoly with certain conditions for the protection of the public. But that very principle imposed a correlative duty upon the State, and when the State interfered with railways to prevent preferential duties, it must consider whether it should, on the other hand, enforce that taxation from which foreign railways were to a much greater extent free, and whether therefore it was not fair to relax the exceptional burdens to which English railways were subjected. They must be just to the railways, and at the same time protect the public from the fact of their being monopolies. Goods traffic

required a much larger amount of nursing for its development than passenger traffic, and in order to develop it to the full extent which the trade of the country would enable it to bear, they must graft upon the system of the country light railways, which, inexpensively constructed, would reduce the general average of cost and would increase the traffic.

Mr. Philip Vanderbyl thought a good deal might be learned from the continental system of working railways, especially with regard to the mode of dealing with the luggage. The giving tickets for luggage afforded a security which we did not possess in this country, and the disadvantage we suffer on English lines is proved by the frequent losses sustained by travellers. After the disparaging remarks that had been made about continental stations, he thought we had nothing to boast of on some of our English lines, especially on the London and South Western line. The station at an important city like Winchester was a disgrace to a civilised country, and Waterloo Station could certainly not be admired for its architectural appearance. No doubt passengers were packed rather closely on continental trains, but we go to the opposite extreme, without the slightest consideration for the shareholders, wearing out the rolling stock by running trains with empty compartments. Another matter which considerably interfered with the dividends was the way in which the railway companies were mulcted by impostors in the case of accidents. He should like the author to have added to his paper a tabular statement of accidents on different lines—giving the nature of accident, the number of persons injured, the amounts paid for different personal injuries, &c. From reading the reports in the newspapers, he felt convinced that the companies were in most cases swindled by impostors, who when asked what injury they had sustained, generally said that they suffered from a loss of memory, injury to the spine, or something which it was impossible to disprove, and which could only be believed by an ignorant or sympathising jury, who invariably decided against the railway companies.

Mr. E. C. Gonner said the Great Western Railway must not be taken as an example of a second class railway, chiefly because, with regard to the west of England, it enjoyed an exclusive monopoly, and ran four trains a day which had no third class at all. They could therefore scarcely conclude from its returns that second class passengers paid better than, or for the matter of that nearly as well as, third class. It was the one railway that could afford no criterion as to the profits of second class travelling. The speed of English trains exceeded that of other countries, and no doubt increased speed meant increased working expenses. The paper failed to afford sufficient data for the conclusions arrived at in such degree as the increase of speed as well as the greater frequency of trains affected the working expenses. The expense per mile could justify no opinion as to comparative cost unless some account were taken of the results which followed, and the circumstances which caused that expense.

Major P. G. Craigie regarded the question of the cost of goods traffic as a far more pressing and important one than the carriage of passengers. He would not then discuss the issues between the companies and their customers, or attempt to follow out the comparisons Mr. Jeans had suggested with foreign charges in the defective state of our own information as to the actual cost of transport here, but he emphasised what had fallen from Mr. Mundella and other speakers, viz., that our British railways would show themselves well advised in fostering and developing as much as possible the short distance traffic. That had been from the beginning of railway management too much neglected in favour of competitive through routes, and had been discouraged and handicapped by heavy charges, such as those for station terminals. He was quite sure that in the aggregate, with lower charges on local traffic, a large revenue now missed would be realised.

Sir Rawson W. Rawson said, with regard to the observations of Mr. L. Cohen and Major Craigie, the system upon which railways had been constructed in England had no doubt had a very important effect in drawing the population into a small number of centres through which their railway system passed, and he believed that if small cheap lines were thrown out as feeders right and left, they would enable manufacturing establishments to be fixed in small places and so to distribute the population, and to check what was certainly one of the great evils not only of this but of other countries, drawing the people from the agricultural districts into the towns.

Mr. A. E. Bateman said he should not have risen had the author not passed some very severe strictures upon the statistics of the Board of Trade, as given in the foreign abstract. That Board not only got the best information from railway statistics published by foreign governments, but they every year sent round to the various bureaux abroad a copy of the foreign statistical abstract, calling attention to blanks, and asking if they could be filled up. They hoped in a year or two to be able to get something like comparative statistics from all countries. With regard to the United States there were no Government statistics; Poor's "Manual" was the only compilation, and that was used so far as it was adopted by Government authority. He thought the author would have done well to have consulted some of the foreign railway returns besides the foreign abstracts, because for the purposes of a paper of that kind abstracts were not sufficient, and information must be sought from the original returns themselves. The author should also have acknowledged the source from which he had taken Table B attached to the paper, which was a mere copy of a single year's figures in Table XIII of the General Reports of the Board of Trade on share and loan capital. (Mr. Jeans said he had done so. He mentioned the sources of his information in a foot note.) Mr. Bateman said Mr. Jeans had referred to the railway returns, but not to these particular reports, quite a distinct publication, from which he had derived a great part of his paper, and added

that in making these remarks he did not at all wish to be ungrateful to Mr. Jeans, who had provided a very interesting paper, which had given rise to an excellent discussion.

Mr. John B. Martin called attention to the comparison instituted in the paper between the figures of the American and of the English railways at various periods. It must be borne in mind that from 1861 to 1865 the dollar fell, in gold value, from par to 66 cents, and that was an element that required to be discounted in the figures laid before them. The effect of making this allowance would be seriously to alter the figures given in some of the tables. Moreover, the insular position of Britain caused the conditions of land and water transport in this country to differ from those which obtained in America, and the navigation laws of the latter country also affected the coastwise traffic by keeping up freights, to the advantage of land transport.

Mr. Jeans, in reply, expressed the pleasure that it afforded him to find that his paper had, in the main, received the approval of so high an authority as Mr. Mundella, who had made an earnest and honest attempt to grapple with the railway problem, for which the community at large could not sufficiently thank him. Among the criticisms passed on his paper, one of the most just was that which put forward the fact that the greater average cost of English lines was due to a variety of circumstances that the paper had not dealt with. This was quite true. It would have been impossible for him, even if he had had the materials, which he had not, nor anybody else, to specify how much of the 50,000*l.* a mile expended on the English railways was expended in actual construction and equipment, and how much in locomotive, wagon, and steel works, the purchase of canals, the construction of harbours, docks, hotels, &c. In the absence of a complete statement of the capital account of British railways, all that they could do was to adopt, as the only standard of comparison available, the capital expenditure relatively to mileage open, and if the conditions of the comparison were not so relevant and parallel as they could desire, there was no help for it. Reference had been made to the fact that the train-mile receipts in England were lower than they otherwise would be, in consequence of the greater proportion of shunting mileage included in the total. This was no doubt the case, and it was a pity that the proportions of running and shunting mileage were not distinguished in the railway accounts, since it would thereby be possible to show what an enormous cost was entailed upon the railways by the present system of sorting traders' wagons. The traffic could be much more economically conducted if all the rolling stock were in the hands of the railway companies. He hoped that his friend Mr. Bateman did not mistake the spirit in which he had referred to the railway returns for foreign countries issued by the Board of Trade. Up to a certain point those returns were excellent, but they were not perfect, and he was sure that if Mr. Bateman looked closely into them he would find that greater uniformity was attainable, if not also greater fulness.

Mr. Hyde Clarke having been precluded from speaking by the lateness of the hour, sends the following remarks:—The subject of the paper of Mr. Jeans is of such importance at this time that it required more space than he can give, and the same impediment interferes with the discussion. This paper will indeed be of more influence on the subsequent development of the question than that which it can exercise by its present limited treatment, and it may give rise to further measures scarcely shadowed forth in it at present. Narrowed as it is in its scope, it is still open to the criticisms of Mr. Mundella, Mr. Tomlinson, and others. Its comparisons are too wide to be exact, and the attempt to apply averages under such conditions has a like effect. In the very beginning Belgium is employed as an equivalent of Great Britain, and yet Belgium has not the same geographical character, its population is the densest in Europe, and its traffic, like that of Holland, is largely for transit to Germany. The whole subject must be looked at geographically, historically, and chronologically to get at the true elements. Indeed this is well displayed in the address of Mr. Edward Woods last week at the Institution of Civil Engineers, when Mr. Jeans was present. In the beginning in 1830, the railways of England, as described by him, were like those of the newest colonies and American States. In 1836 a railway was estimated by myself, as allowed by the standing orders of the House of Commons, without stations, sidings, fencing, signals, &c., and Mr. Tomlinson says he saw the Clarence Railway worked without stations. At a much later period the construction of a similar line abroad came under my own experience. If such a line is allowed, then it will be built cheaper than the average of the English and European lines cited by Mr. Jeans. He dwells mournfully on an English average of 49,000*l.* or 50,000*l.*, but whether there is any real ground for his despondency is most doubtful. The fact is that whatever the average, there are suburban lines in England which cost much more than the average, and more than a quarter of a million. There are lines in England as cheap as similar lines built at the same epoch, and with the same cost of materials. Chronologically one cannot compare a line built some years ago, with iron rails at 10*l.* or 15*l.* per ton, with a newly built line with steel rails at 8*l.* per ton. On fair examination the cost of English lines is not so much more than those of their continental contemporaries. On the other hand, as Mr. Mundella has put it, we have enjoyed the benefit of a well developed railway system in advance of other countries, and to this our prosperity is greatly owing, and more particularly our industrial expansion and the consequent traffic. If we more closely follow Mr. Jeans, we shall see that the average cost of our lines has nothing to do with the real solution, for, as he says, we must take the cost as an accepted fact. What we have got to deal with is the conditions of working. Mr. Price has well called attention to the greater effective value we receive in our passenger traffic, and to some extent this is so in our goods traffic. On the continent the traffic is divided into *grande vitesse* and *petite vitesse*. A cheaper rate is often obtained at a considerable sacrifice in punctuality and speed.

That the working of railways in England needs to be improved, and can be improved, can be sufficiently determined from the investigations of Mr. Jeans. Few take into account that we have not a scientifically trained staff of railway directors. Of course there are chairmen of great cleverness, but there are other classes of directors: there is the small tradesman who has become a large tradesman, and then a railway director, and who has no knowledge and no administrative capacity. Railway officials on examination prove to be creatures of routine. A lad of the smallest schooling gets into a booking office, and the audit office, gets charge of a station, and by some chance becomes a general manager. He knows the *rôle* of his station work and that is his training. The men who founded this administration half a century ago were taken from the outside: large carriers, merchants, and others who had been engaged in business transactions. The best of the present officials come not from the lower ranks, but from secretaries, engineers, &c. Even Mr. James Allport waited for years before he made his experiment on third class traffic, though the doctrine had long been proved and urged on scientific evidence. The cramming of trains is not quite so easy here as in France; there a daughter is separated from her mother, a wife from her husband, to fill up a corner; but this cannot be effected here on a long journey. Nevertheless trains can be better managed, and it is of interest for the Statistical Society to consider the statistical methods by which this may be advanced. The neglect of statistics by the companies is one cause of the deficiencies in railway statistics complained of by Mr. Jeans. In France, as has been described by me, there is attached to each railway a *bureau de statistique*, with a head, who is not highly paid, and with a few common clerks. They are independent of the clearing or the audit office. It is their business to write out the passenger and goods traffic of each train, to record their earnings and every detail, and to report to the management what a train shows, whether it is increasing and may need dividing, or whether it is falling off and may be amalgamated with a train at another hour. The arrangements of the *agents commerciaux*, or commercial travellers for hunting up traffic, are also on a better basis. There can be no doubt there is ample room for amending our administration, but that again requires ample space. With regard to checking speed, that is a most questionable proposition, for we do not know what has to be done. George Stephenson having attained twelve miles an hour, it was so increased by Brunel that Mr. George Carr Glyn, chairman of the London and Birmingham, proposed about 1844 to obtain an Act to forbid a speed beyond twenty-four miles an hour. Since then speed has been increased, with greater safety and economy, and lines can be worked of gradients formerly impracticable, and without the expensive tunnels which encumber the earlier lines. History repeats itself, and Mr. Woods pointed to the introduction in the Hartz railway of the rack rail, with which in 1816 Mr. Blenkinsop proposed to compete with the original locomotive invented by the effective founder of our railway system, Richard

Trevithick. We hardly know what is now done, and we cannot tell what next year will do for us in improvement and invention. As to what is going on, the best comment on the reliance of Mr. Jeans upon American statists is that in London an institution with which the chairman is connected has been formed to ascertain the real facts as to the actual clear lines in which money is here invested and the enforcement of true accounts. Incidentally we may comment on the chairman's amusing anecdote as to our friend Mr. George Wythes. In those days there were many contractors of wealth experienced in dock and other earthworks, and the making a fortune in a railway contract was not so certain. We know that a certain railway contractor under Mr. Brunel ran the chance of being ruined, and that there was a heavy suit between the great firm of Messrs. Macintosh and his company. Without going further into the many points dealt with by Mr. Jeans, it may be said that the real and ultimate question has been carefully avoided by him and by every speaker, and that is Government purchase. There are two loose phrases in regard to railways: one is private enterprise and its vested rights, another is that of monopoly cited by Mr. Mundella. Railways were originally constituted on the basis of the king's highway, and it was supposed that the public could run their own waggons, as is practically done by coal owners. The companies have driven the public off the railways, and thereby and in various ways infringed their constitutions. The construction of the railways by these companies was supported by many of us, but the working of them by persons who do not fulfil the public trust with which they are entrusted is another matter. What will settle the whole question is that competition now established by the Governments of Germany and Belgium on State railways, and which by its pressure on our industrial and agricultural interests will leave no alternative. It will then be found that none of the difficulties talked of in reality exist. The enormous capital to be raised for the purchase is a mere matter of clearing, a simple transfer of capital. The railways have themselves taught how they can be managed, and like the telegraphs their staff will be transferred. There is no fear as to patronage, for competitive examination with its practical demerits affords a convenient engine for dealing with appointments. A government department which can work a rural postman from morning to night will be found as able at a railway board to expose shunters to mutilation and death, and to keep signalmen at their posts beyond human endurance. Such a change will not necessarily be a positive improvement, but a government department can be more effectually brought under public opinion than can railway directors, and the country will be able to conduct its business more satisfactorily if it acts before foreign competition has brought upon us further and final losses.

With reference to these remarks of Mr. Hyde Clarke, which he had not the opportunity of noticing at the end of the discussion, Mr. Jeans states: I acknowledge the high authority with which he is entitled to speak on the subject, but question the expediency

of his raising the vexed question of State *versus* Private Control. That point has not been referred to in the paper, and it is scarcely covered by its title. The State purchase of our railways is a matter that can hardly be satisfactorily dealt with without the fullest and gravest consideration. Scarcely any two countries furnish the same experience, and scarcely any two authorities hold precisely the same views relative to this matter. It is indeed one so full of perplexity, and involves so many difficult and intricate considerations, that the chairman (Mr. R. B. Martin) who had not many years ago avowed himself a believer in State purchase and control, had only that evening recanted that belief. I am of opinion that it would be next to impossible to arrange terms that would receive general approval as between the railways and the State, even if the acquisition of the railways by Government were deemed a desirable step. Any attempt to acquire the railways compulsorily, or otherwise than by negotiation, would justly raise the cry of confiscation. On the other hand, the State had prescribed, many years ago, the conditions under which the power was reserved to enter into such a purchase within a certain period; namely, that the railways should receive twenty-five years' purchase of the net receipts, assuming that they averaged 10 per cent. on the capital embarked, and that where they amounted to less than that, the difference should be referred to arbitration. Now it happens that twenty-five years' purchase of net receipts at an average of 10 per cent. would involve the payment at the present time of 2,025 millions, which is 1,209 millions, or 150 per cent. more than the sum actually expended on our railways as a whole; and yet it is difficult to see how the State, having laid down this as a fair basis of arrangement in the past, could run away from it now. I agree with my friend Mr. Hyde Clarke that grave danger is threatened to English industry by the fact that in the future we shall have to compete with European rivals, whose railways, unlike ours, will be national property, and absolutely free.

"Economic Science *and* Statistics." *The* Address *of the* President *of* Section F *of the* British Association, *at the* Fifty-Sixth Meeting, *held at* Birmingham, *in* September, 1886. *By* John Biddulph Martin, M.A., F.S.S., F.Z.S.

As the years succeed each other, and the roll of past Presidents lengthens, an ever increasing burden of responsibility lies on the occupant of the chair which I am called upon to fill. For twenty-one years (1835-55) this Section existed as the Statistical Section; for thirty-one years more it has been known as the Economic and Statistical Section, and for the fourth time its meeting place is Birmingham. Henry Hallam presided over this Section at the Birmingham meeting in 1839, the late Lord Lyttelton in 1849, the Earl of Derby, then Lord Stanley, in 1865; since the last-mentioned date the chair has been occupied by men distinguished by their knowledge and practice of public affairs—such as the late Mr. W. E. Forster, Lord Iddesleigh, and Mr. Shaw-Lefevre—or by their acquaintance with the theoretic aspect of economic questions, among whom may be mentioned Professor Ingram, Professor Jevons, Professor Thorold Rogers, and Professor Sidgwick; while the names of Mr. Palgrave and of the late Mr. Henry Fawcett recall men who in different careers of life have shown themselves conversant with matters theoretical and matters practical alike. It might have been assumed that under such guidance the position of this Section of the British Association would have been at all times amply secured; yet it is no secret that but a few years ago its efficiency was called in question, and its status as a scientific body was seriously challenged. The attack called forth an address that has been described by a subsequent President as "the most "elaborate and brilliant to which this Section has ever listened," and since the delivery of this address at Dublin by Professor Ingram in 1878 the position of the Economic and Statistical Section has been, if not absolutely defined as a matter of form, yet practically secure as a matter of fact.

But it is not only before the followers of rival sciences in this many-sided British Association that economic research has had to stand on its defence. Almost at the same time that Professor Ingram was vindicating the proposition that economic phenomena were "capable of" and "proper subjects for" scientific treatment,

Professor Bonamy Price, addressing a body* somewhat similar to our Section in its constitution, declared that "political economy is "in entire abeyance," and concluded that "political economy "is not a science, in any strict sense, but a body of systematic "knowledge gathered from the study of common processes, which "have been practised all down the history of the human race in "the production and distribution of wealth. Who," he exclaims, "sends for a professional economist in a strike?" and in despair at finding that "in the war of classes political economy is absent," and that he was unable to discover "uniform sequences, general "facts which can be described as laws because they ever recur in "the same form," decides that until the far-distant day shall come when the actions of man in his social relations shall be guided by a supreme governing science of society, "for sociology we must "substitute political philosophy in its broadest sense; or better "yet, the legislator himself." But we should hardly look for such a legislator among the ranks of practical men, "swarming with "theories, with ideas built up with the greatest dogmatic confidence "in his knowledge of business. His common sense is the very "last authority to which the decision of what is right political "economy ought to be referred." From the guidance of such untrained empiricism, as obnoxious to Professor Bonamy Price as to Mr. Herbert Spencer, no right guidance is to be hoped, nothing but disaster can be expected. In point of form the controversy was obscured by the difficulty that exists in deciding the exact limits of art and science respectively, and in defining either the one or the other of these. It is not for one whose training has been strictly practical, whose conclusions have been derived rather from observation of contemporary facts than from academic teaching, and whose present object is not to weary you with dialectic subtilities, but to insist that true social science is nothing if not practical, to refine on the shades of meaning that attach to words and terms. It may be left to a more fitting time and place to reconcile or to decide between the dictum of Mill that "art "necessarily presupposes knowledge; art, in any but its infant "state, presupposes scientific knowledge,"† with that of Dr. Guy: "An art, so long as it continues to be a mere affair of skilful "handiwork, remains an art; but directly it submits itself to the "guidance of well-ascertained principles, it may claim to be a "science;"‡ or to reconcile the saying of Sir John Herschel, that "science is the knowledge of many, orderly and methodically

* Department of Economy and Trade, *Social Science Congress*, Cheltenham, 1878.

† "Logic," Introduction, sec. 2; *cf.* also sec. 6.

‡ "Meaning of term Statistics," *Journal of the Statistical Society*, December, 1865, p. 488.

"digested and arranged, so as to become attainable by one,"* with that of Professor Sidgwick, who understood science as "the con-"sideration of all subjects, whether of a pure or mixed nature, "capable of being reduced to measurement and calculation."† Within the bounds of one or other of these definitions we may arrive at the exclusion from the domain of science of all but the registration of immutable laws, and lay down as the *ne plus ultra* of science the statement of the simplest mathematical formula. In this showing there can be no experimental science, for there can be no science until the experimental process has evolved the knowledge of a law. Or, on the other hand, we may easily claim a place among sciences for the objects of this Section, namely, to investigate the laws which govern the individual and social life of man, to examine causes which seem to be accountable for exceptions, real or apparent, to such laws, and, in the words of Dr. George Mayr, "from milliards of facts obtain the grand "average of the world."

It is perhaps in the sciences that have their origin in our knowledge of physiological law that we can find the closest parallel to the position of economics as a science. The sciences of medicine or of surgery are clearly based on our acquaintance with the growth, the nutrition, and the decay of the body, the structure and properties of its component tissues. We know that "if the brain "be out, the man will die;" that if we open an artery he will certainly bleed to death; that a given quantity of a certain drug will inevitably kill. But if medical science were no more than this, the physician would be no more than the veterinary, the surgeon nothing better than a joiner. In the application of medical knowledge, whether to a particular case or to an epidemic, previous history, immediate environment, even psychological considerations must certainly be taken into account. Mistakes have arisen, and still arise; we are amazed at the faulty inferences and analogies that have been drawn by medical experts in the past, and we may doubt whether finality has been in all cases attained even at the present; but the physical laws remain, and are not discredited by the faulty interpretation of them by their students.

We need not, then, despair of the future of political economy, and acquiesce in its relegation to a distant planet, because its teaching, based too often on *à priori* reasoning, and too little on the experience of history, does not always square with the actions of men, warped in their judgment of any particular problem of the day by prejudice or self-interest. May we not claim that economic science has rather taken up wider ground than, as has been said

* "Discourse on Natural Philosophy," p. 18.

† Address to British Association, 1833.

by a recent writer, that it has abandoned many of its outworks: that it does not only concern itself with the production and distribution of wealth, regarding human beings as mere automata, or as parts of a machine, each fulfilling its assigned function with undeviating and passionless precision: but that rather

> Quidquid agunt homines, votum, timor, ira, voluptas,
> Gaudia, discursus,—*

must be taken into account in that true statecraft to which political economy should be our guide? If the parties to an impending civil war between labour and capital, to an international war of tariffs, or of arms, do not refer their differences to the arbitrament of a professional economist, it is not less because scientific opinion or expert common sense could not be trusted to a sound or right decision, than because

> Faciunt homines plerumque cupidine cæci
> Et tribuunt ea quæ non sunt his commoda vere? †

It is no reproach to economic science to have taken up wider ground, to have recognised as matters within its proper scope considerations that the older economists, concerning themselves with wealth in its narrow sense as the *summum bonum*, and with the desire for its acquisition as the one mainspring of human action, would have rejected as sentimental or philanthropic. Humanity is many-sided, its units do not lend themselves to grouping or combination with the precision of mathematical symbols, and the experiments of the social philosopher are subject to disturbances unknown in the laboratory of the chemist. The experiments of physical science are difficult enough. "In the "spontaneous operation of nature there is generally such complica- "tion and such obscurity, they are mostly either on so over- "whelmingly large or on so inaccessibly minute a scale, we are so "ignorant of a great part of the facts which really take place, and "even those of which we are not ignorant are so multitudinous, "and therefore so seldom exactly alike in any two cases, that a "spontaneous experiment is commonly not to be found."‡

But experiment on the body social is a matter of yet greater complexity; the very conditions of man's being, and the prerogative of independent action based on intelligent reasoning power, that form the basis of, and give rise to the study of social science, render all experiments tentative, and their result rather a calculation of grand average than an evolution of absolute law. Professor

* "Juv. Sat.," i, 85.
† "Lucretius," iv, 1153 and 1154.
‡ Mill, "Logic," vol. i, book iii, chap. viii.

Marshall, in considering the functions and limits of the historic method, uses language similar to that applied by Mill to experiment in the physical sciences:—

"History never repeats itself. In economic or other social "problems no event has ever been an exact precedent for another. "The conditions of life are so various: every event is the complex "result of so many causes, so closely interwoven that the past can "never throw a simple and direct light on the future."*

The attention of more than one ingenious inquirer has been occupied by the harmonies and antagonisms between economic and natural science, and the former may be shown to have its physical, its biological, and its psychological side.† It is in no way derogatory to the latter studies if they too depend on the accurate observation and correct interpretation of facts for the determination of their truths and the establishment of their general laws. The discovery of a footprint in some primeval sandstone, of a flint weapon in the drift gravels of the Somme, of a human skull in the caverns of the Meuse Valley, or in the auriferous drifts of California, may set back the dial of geological time and revolutionise our conceptions of the duration of animal or human life on our planet. If then our inquiries into the physical phenomena that surround us compel us to admit that no finality has yet been reached, need the economist hesitate to allow that the bases of his sphere of observation are not immutably laid down, that his conclusions are not yet absolute?

The naturalist or biologist watches the infinite complexity of the opposing forces of construction and destruction that make up the balance of animal and vegetable life. All nature is incessantly at war with itself, and the battle is to the strong, the race to the swift; a sure instinct guides each individual, or each aggregation of individuals, in the path of unswerving selfishness that leads, in the great majority of cases, to the maintenance of the species. In the crowded communities of the lower animals all is order, regularity, and method; the sustenance of the community, the ventilation and sanitation of the common dwelling, and the disposal of its redundant population, all is provided for; and though pestilences occur, it is chiefly in the case of animals subject to man that they appear to have any sensible or permanent effect on the aggregate numbers of the species. With mankind it is different; his better and more amiable feelings no less than his self-interests, his virtues as well as his vices, tend ever towards results that are not in harmony with those that would ensue from the operation of

* "Present Position of Economics," 1885, p. 41.

† P. Geddes, "Analysis of the Principles of Economics," London and Edinburgh, 1883.

natural law. The higher the civilisation of any community, the more does it tend to aggregation and concentration of its members; in large cities the forces that lead to the deterioration as well as those that promote the conservation of the race tend no less to destroy than to maintain the balance of nature. Sanitary science, even though its teaching be enforced by compulsory legislation, has a hard struggle to keep at bay the diseases that man, less well taught in this than are the lower animals, seems inevitably to invite to his crowded cities and insanitary dwellings. The resources of medicine and surgery ally themselves with the promptings of humanity or natural affection in promoting the survival of the least fit, and the perpetuation of a race too often inheriting the vices, no less than the diseases of their predecessors. Nor is it in cities only that man's interference with natural forces reacts on the conditions of his life; the settlement and clearing of a new country, and in a minor degree even a change of agricultural methods in one already settled, affects the fauna, the flora, and even the climate and meteorology of the land, its power of production of food, and its salubrity for habitation.

It is something if we have learnt by the experience of time that social problems are not the mere calculation of man's actions as determined by motives of self-interest, and as measurable in money or its equivalents. Need we abandon all observation because we cannot conduct experiments with the precision of the chemist, weighing our ingredients in the balances of the laboratory? The land, as delimited by Adam Smith, by Ricardo, and even by Mill and Cairnes, has been found too narrow for us; the boundaries have been broken down and overpassed: is there no alternative between the despairing admission that all is barrenness before us, and the elaboration of such Utopian schemes of society as have been imagined by Rousseau, by Robert Owen, or by Comte and his disciples of the present day? One lesson at least we may learn and take to heart: whether, on the one hand, the problems of social science are capable of being stated and solved by a method towards which we are as yet but groping our way in semi-darkness, by some new organon yet to be formulated; or whether, on the other, we must depend on the promptings of well balanced and trained common-sense for the explanation of every new combination of conditions: whether political economy consist in the discovery of truths, or merely in the recognition of facts, it must not be academic only. No community can be fed on dogma; an industrious and hardworking population, such as is that of our country, and of which the great city in which we are assembled furnishes the most conspicuous example; quick to appreciate the hardness of the struggle by which it maintains itself in existence, and eager to grasp at any

prospect of alleviation, will not be convinced as to the universal applicability of formulæ of supply and demand, of entire freedom of contract and unlimited competition in the circumstances of their particular case. Nor, on the other hand, will any credit accrue to the study of political economy if we abandon ourselves for all guidance to the untrained promptings of empiricism; the guidance of so called common sense, sometimes called into action by generous instincts, sometimes by mere impulse, is only too frequently misleading.

It is at this point that the statistical method comes in as an inseparable ally of economic speculation. If the latter has had from time to time, and still has, to assert its position among the sciences, what place shall be assigned to the method which is only too often assumed to be the mere massing and grouping of figures? It has been said—and the saying is not altogether devoid either of truth or humour—that "statisticians when they meet together "devote half their time to discussing the status and dignity of "their pursuit, and its precedence of, or subservience to, "economics."* The vulgar misuse of the word statistics has no doubt contributed in many cases, to ambiguity in its use. The extreme instance need perhaps hardly be mentioned when "statistics" are used simply as equivalent to "figures;" one may read or hear even this expression, "You can prove anything by "statistics." To say that you can prove anything by figures is intelligible; just so can you prove anything by a syllogism with a faulty premiss, or that might is right by the law of the stronger. But apart from cases in which false figures do not tell the truth—I do not say false statistics, for to speak of false statistics appears to me to be very nearly a contradiction in terms—there is the much more frequent class of cases in which they do not tell the whole truth. Examples of this class will readily occur to everyone; I may refer to one very happily chosen by the President of this Section in 1865 (Lord Derby), namely, the error that may be imported into the death-rate by a year of pestilence, not only by its effect on the mortality of the year of its occurrence, but by its clearing away feeble lives, and so lightening the death-rate in years immediately consequent. There is less to be feared from errors arising out of this source if we lay to heart the warning uttered by Mr. Goschen on a recent occasion, "Beware of totals"—if we recognise more fully than we are usually apt to do that a table of figures, even if it be absolutely correct as a statement of fact, is merely raw material, not a finished product. The misfortune is that it is only too frequently treated as the latter. Such a table usually sets forth

* "Times," 25th June, 1885.

what in the dialect of the produce market is known as the "statis-
"tical position" of some article of trade, or, in the language of Mr. Wynnard Hooper,* as the "primary statistical quantity." Mr. Hooper, while agreeing with Professor Ingram in denying to statistics any right to be described as a science, defines the statistical method as "a scientific procedure involving the employment "of statistics," the intelligent compilation of these primary quantities, and the intelligent use of them when so compiled. This definition makes the statistical method applicable to the solution of the well known problem, interesting, no doubt, to some in Birmingham, "What becomes of all the pins?" no less than to the most complex economic questions. If the word "statistics" were equivalent to "figures," there would be nothing to be said against this; but the history of the word shows that its connotation has always been in a condition of unstable equilibrium. The late Dr. Guy, one of the most ardent champions of the dignity as a science of the method for which he did so much, has traced for us the evolution of the word,† from the now almost extinct form "statist," as used by Shakespeare, Milton, and the dramatists of the Restoration, in the sense of economist, to the invention in 1749 by Achenwall of the singular form "Die Statistik," and the adoption of "statistics" in this country at the beginning of the present century. Even since that recent period the wheel has come round full circle. In 1833 statistical inquiry was introduced to the notice of the British Association as one which should limit itself strictly to "matters of fact" and "numerical results," eschewing altogether matters of opinion, even as deduced therefrom. A similar spirit seems to have been in the founders of the Statistical Society of London in 1834, who adopted as their motto "aliis exterendum," a phrase implying that their province was merely the harvesting of the above defined primary statistical quantities, to be threshed and winnowed by the political economist. That this restricted scope was all that could be claimed by statistics was strongly held by some of its leading members; but the original motto of the Society has been abandoned, and the narrower view has been by no one more emphatically repudiated than by Sir Rawson Rawson, late President of the Society, in his opening address to its jubilee meeting in 1885: "I am not prepared to make statistics the hand-
"maid of social science, to degrade the parent into the position of "a hewer of wood and a drawer of water in the service of its own "offspring."‡ Nor have indications been wanting of a desire, still

* "Method of Statistical Analysis," *Journal of the Statistical Society*, March, 1881, pp. 44 and 45.

† "Meaning of the term Statistics," &c., *Journal of the Statistical Society*, December, 1865, pp. 478—493

‡ Statistical Society, "Jubilee Volume," 1885, p. 9.

more recently expressed, to break down the wall of division between statistics as generally understood and political economy, and to treat the two, if not as identical, at least as so closely allied as to be capable of similar or simultaneous consideration.*

Enough has been said to show how very indeterminate have been the positions of economics and statistics from the time when they first obtained recognition as subjects of special study; how attempts have been made and resisted to restrict economics to the narrow circle of political arithmetic, or how statistical study has attempted, and that successfully, to vindicate for itself a more enlarged scope than the mere tabulation of figures. Dr. V. John of Berne, Dr. Geo. Mayr of Strasburg, and among ourselves the late Dr. W. A. Guy, have amply summarised the history and terminology of this branch of inquiry. It would be superfluous to add to or to repeat what these and others have written; it is sufficient to insist—if indeed it be necessary to do so—that as in the debatable etymology of the word statistics we may find by implication the whole range of political economy, so in the word economy are included all things that pertain to the due regulation of the body corporate, whether State or household, and not those only that pass in the former as laws of the distribution of wealth, and in the latter as the keeping of accounts. But from whatever standpoint we may regard either economic or statistical study, whatever may be their mutual connection one with the other, and whatever affinities we may trace between either of them and the branches of knowledge which divide with them the attention of this Association, we must always bear in mind that we in this Section, though by no means utilitarian only, are yet pre-eminently liable to be called on to show how far our works have been of practical advantage to mankind. In other departments of inquiry, as in our own, science and art go hand in hand; astronomy depends not only on the interpretation of nature's laws reduced to mathematical formulæ, but on the art of the instrument maker as taught by the science of optics; the microscope, the spectrum, the retort, and the blowpipe lend their assistance equally to the chemist, the geologist, and the physicist. So with us are figures, if not the slave or the handmaid, yet in any case an indispensable adjunct to and an inseparable companion of economic research. But while the word utilitarianism has an unpleasing sound to the majority of scientific ears, it is one by which ours need not be offended. The astronomer will be slow to admit that the knowledge of the causes that affect the tides and the better guidance of the adventurous navigator are the highest outcome of his science; the chemist or geologist alike will demur to the proposition that his proudest achievement has been

* Statistical Society's Report, 1886.

the facilitation of gold mining, or the improved application of artificial manure to the soil. The services of physical science to humanity have, indeed, been many and splendid; they have affected the conditions of man's existence all over the world, and have given rise to new problems for the economist; we cannot level at the man of science the reproach

> nec quidquam tibi prodest
> Aerias tentasse vias, animoque rotundum
> Percurrisse polum, morituro.*

But we ourselves must be content to be judged directly by our works, to stand or fall as we can vindicate to ourselves that we have done, are doing, and shall continue to do work for the advantage of our fellows. "Orthodox" political economy may be said to be the study of the laws which regulate the acquisition or distribution of wealth; the object of orthodox statistical inquiry to check, as in a balance sheet, its concentration or diffusion: unless we enlarge the definition of wealth so as to make it include all things desirable by the well balanced mind, a deliberate election of the good, under the guidance of rightly exercised reason, such as Aristotle defined virtue to be,† we shall be constrained to admit that the founders of the United States of America were better advised when they laid down as the scope and object of their political system the assurance to every man of "liberty and the "pursuit of happiness." If this be so, the "unorthodox" economist of the present day will have to admit to himself that he has to address himself to the problem declared in a well known passage of Carlyle‡ to be insoluble by "the whole finance ministers and "upholsterers and confectioners of modern Europe in joint stock "company, to make one shoeblack HAPPY." Nor will the disciples of the school of Humanity go far beyond us in declaring that "we "uphold as the true key-note of social re-organisation in the future "the insisting on the moral law as supreme and paramount to "interest."§

Our responsibilities are great, if our studies and labours are anything more than philosophic speculations, anything better than an Epicurean survey of causes and effects, which we are altogether powerless to direct or to influence. As we contemplate the changes that have taken place in the material conditions of man's life all over the civilised world during the past century, or in our own country during the period of fifty years, whose approaching completion under the sway of our Sovereign is giving a text to so many themes of self gratulation, this responsibility is constantly

* Horace, Carm., i, 28, 4.
† *Cf.* definition of ἀρετή, Aristotle, "Ethics," book ii, sec. 6.
‡ "Sartor Resartus," book ii, chap. ix.
§ Mr. Frederic Harrison, "Times," 31st May, 1886.

forced on our attention. Has this vast increase of population, concomitant with a still more astonishing and ample store of the means of sustenance and of the collective wealth, been accompanied by an improvement in the well-being of the individual? And if we are able to answer this question in the affirmative, and to justify our answer by figures, so far as figures will enable us to do so, can we claim that this general improvement is due in any degree to our right appreciation of economic laws, and to the right application of human control to them, so far as human agency is competent to interfere in their operation? Or has this progress been brought about by causes which we are impotent to control, and which it is therefore useless to examine? Or, on the other hand, is this apparent progress entirely illusory? is it true that the type must deteriorate in proportion as the individual multiplies? and must we admit that our researches have been either labour misapplied, or that they have been powerless to arrest the movement on the downward slope? These are questions to which it is not easy to give any answer that shall be beyond cavil or criticism, but they are always before us, and we may not decline to face their consideration. Most notably do they press themselves on our attention in such a place as Birmingham. Our overgrown inorganic metropolis is a thing apart, without cohesion or entity, not comparable with any other social unit; our large cities still have a life and individuality of their own. When we contemplate our busy ports, our fleets of ships, and the vast mass of foreign materials which a network of railways distributes to inland centres of manufacture; when we view the swarming streets, the splendid buildings, and teeming industrial population of such a city as Birmingham, we may point to evidence of material prosperity that cannot be gainsaid, and may challenge comparison in this respect with the world. But we pay a penalty for all this in a shape which is no less constantly forced on our notice; crowded lanes, noisome alleys, insanitary dwellings, stunted and unhealthy men and women, sickly children, bread hardly won by labour in factories or at occupations that no legislative interference can render wholly innoxious. "The evils and the "diminished vitality that are caused by poverty, crime, personal "uncleanliness, drink, and excess of all kinds, as also by the close "agglomeration of human beings in places that offer the best "chance of lucrative employment, and especially by the unhealthi-"ness of certain occupations, are such as can at best be mitigated "by the sanitary authorities, and often lie entirely outside their "power of interference."* Hence arise misery and poverty, and

* "Supplement to Report of Registrar-General," 1885, Introduction, p. xvii; see also "Report of Chief Inspector of Factories," &c., 1885, pp. 18—23.

thence discontent, contrasts between luxury or ease, and poverty or want. Hence, again, conflicts between capital and labour—a worse than civil, a fratricidal strife—between forces whose co-operation is essential to success, and an inclination to apply legislative remedies at every turn to each evil that strikes the imagination or the eye.

It is not surprising that pessimist views should sometimes prevail, and that expressions should pass current such as the one which I quote from the public press: "Some attempt should be "made to strike at the over-pressure of population in London, "which is, of course, the root of the evil. . . . . It obviously is "the evil which we have got to face. The tendency to drift into "cities is one of the curses of all civilised communities, of what-"ever social stock they may be."* For myself I am not prepared to admit that a tendency which is indisputable, and which is displayed in every nation in proportion to its enjoyment of peace at home and abroad, has laid the world under so widespread a curse. It is a tendency that is as well marked in nations that are among the least progressive in point of population as in those of most rapid growth. In France, whose population is practically stationary, the rural population, which forty years ago constituted three-fourths of the total inhabitants, is now but two-thirds of the whole, showing a transfer on balance of four million souls (including, however, one million of immigrant foreigners) from the country to the towns.† On the other hand, in the United States, whose population is expanding with a rapidity that is proverbial, and whose numbers are doubling themselves every twenty years, as against an estimated period of two hundred and seventy-one years in the case of France, the increase of urban population is still more strongly marked. The official figures of 1840 show that in the United States one-twelfth of the population lived in cities of 8,000 and over; in 1850, one-eighth; in 1860, one-sixth; in 1870, a little over one-fifth; in 1880, not much less than one-fourth.‡

* "Observer," 7th February, 1886.

† "La question de la Population en France et à l'Étranger," M. Cheysson, Paris, 1883.

‡ Population of the United States: from "Compendium of Tenth Census "Report," Introduction, p. xxx, and Report, p. 8:—

	Town Population 8,000 and over.		Rural Population.		Total.	
1840	1,453,000	8·5	15,616,000	91·5	17,069,000	100
'50	2,897,000	12·5	20,294,000	87·5	23,191,000	100
'60	5,072,000	16·1	26,371,000	83·9	31,443,000	100
'70	8,071,000	20·7	30,487,000	79·3	38,558,000	100
'80	11,318,000	22·5	38,837,000	77·5	50,155,000	100

In England the same process has been going on simultaneously with the great stream of emigration which has transferred millions of our population to other countries. The phenomenon is too familiar to be insisted on, though the exact extent to which it has been displayed is less clear. The distinction between an "urban" and a "rural" district is, and perhaps must be, arbitrary, and in many cases unsatisfactory; it is not always easy to decide, officially or otherwise, who is a townsman and who is a peasant. But it is roughly estimated* that whereas thirty years ago the population of England supported by agriculture was about equal in number to that supported by manufacturing industry, the proportions are now approximately as to two-thirds manufacturing, and as to the remaining one-third agricultural. Passing over the fact that in many cases a manufacturing population does not cease to be rural, and bearing in mind that the question is as to the comparative welfare of townsman and peasant respectively, a comparison of the birth-rate and death-rate in town and country does not show so preponderating a balance as is usually imagined to exist. A net normal increase in the English agricultural population of 14·135 per thousand as compared with an increase in the towns of 14·030, or a balance in favour of the former of 1 per thousand, is but a narrow margin of advantage. Nor is it the largest cities that are the most attractive to new immigrants, since we find that the rate of increase varies inversely with their size, and that during the last ten years the population of towns of under 20,000 inhabitants has increased almost exactly as fast again as that of towns of 50,000 and over. On the other hand, it is precisely during the evil times of 1841-51, the evil days of "Sybil," of "Mary Barton," of "Sartor Resartus," recently quoted by Mr. Giffen,† when the increase of the population was the slowest, that the proportion of the population supported by agriculture reached its highest point. And if we compare the vital statistics as a whole of our present town dwelling population with the more rural one of 1838-54, as presented to us by Mr. Noel Humphreys in a recent paper read before the Statistical Society, we do not find that the conditions of town life have told adversely on the population of the country as a whole. Mr. Humphreys answers the question, "Do we have a greater enjoyment of life as the "result of a decline in the death-rate, or are we only a little slower "in dying?" by demonstrating that "although a large propor-

* *Journal of the Statistical Society*, June, 1886, "Occupations of the "People."—Charles Booth.

† "Progress of the Working Classes," *Journal of the Statistical Society*, March, 1886; see also Tooke's "History of Prices," 1848, vol. iv, pp. 56 and 57, as to the effect of the stoppage of flow of population from country to town in 1842-44.

" tion of people cease to be dependent before 20, and a large " proportion of people do not become dependent at 60, we shall " not be far wrong in classing the forty years from 20 to 60 as the " most useful period of man's life. Of the 2,009 years added to " the lives of 1,000 males by the reduction of the death-rate in " 1876-80 (as compared with 1838-54), no less than 1,407, or " 70 per cent., are lived at the useful ages of between 20 " and 60."*

Nor did the Anthropometric Committee, appointed on the recommendation of this Section in 1875, which carried on its work until 1883, verify by its observations the generally prevailing notion that the population of the kingdom is degenerating. The observations of the Committee were on a comparatively small scale, but as far as the opportunities and resources of the Committee enabled them to be carried out, they showed that although in average height and weight the peasant in this country is superior to the artisan, as might be expected from the conditions of an out-door as against a mainly indoor life, the stature and weight of factory children has decidedly increased. " The increase in weight " amounts to a whole year's gain, and a child of 9 years of age " in 1873 weighed as much as one of 10 years in 1833, one of 10 " as much as one of 11, and one of 11 as much as one of 12 years " in the two periods respectively."†

I have dwelt briefly on the subject of vital statistics, as being perhaps the most important subject of inquiry that can come under the consideration of the statistician or the economist. " That which " does no harm to the State does no harm to the individual;" we may state conversely this maxim of Marcus Antoninus, and claim that which is beneficial to the individual is beneficial to the State; and if the prolongation of life be, and be rightly, an object of universal aim, it is especially desirable that we should inform ourselves accurately as to whether we are living under conditions favourable to its prolongation. And if we can prove to demonstration that this is the case, and that the average duration of life at the period when life is most useful and most enjoyable has increased, we shall have made one step necessarily preliminary to the inquiry, how far this has been due to the common sense of the community rightly left alone, and how far to regulation by the State of man's apparent inclination to choose the evil rather than the good.

I do not propose to discuss here the precise extent to which the Factory Acts, Sanitary Acts, the greater recognition of the necessity for providing open spaces in large towns, or play-

* *Journal of the Statistical Society*, June, 1883, p. 204.

† "Report of British Association," 1883, p. 298.

grounds and recreation for their children and inhabitants, have contributed to the results which have been obtained. I would rather limit myself to pointing out how, in such an all-important subject of inquiry, the utmost diligence is necessary if we would escape dangerous error. The population of a great city is not a mere inert mass of units, to be counted and compared with other similar aggregations, as we count and compare tons of iron or bales of cotton in stock. Before we can arrive at any pronouncement as to its welfare or otherwise, we must take into consideration many factors besides its actual population at successive periods, or its birth-rate as compared with its death-rate. I may cite for one or two instances of these disturbing causes the admirable essay by Mons. E. Cheysson, to which reference has already been made. He shows clearly how in the case of Paris the birth-rate is raised by the many cases in which provincial shame and crime seek concealment in the metropolis, and how the infant mortality of the city, frightful though it be,* is diminished by the custom of sending the children to be nursed in the country, with the apparently paradoxical result that of 1,000 births there are remaining but 421 of between 1 or 2 years of age, while there are 465 of 2 years and over. Again, the various motives which have their expression in attracting a vast immigrant population to Paris, place the city in some respects in the position of a new colony; the immigrants are of the age of the greatest vigour and energy, and consequently the population of Paris between the age of 15 and 25 years is greatly in excess of that at even the earliest years of life. The disturbing influence which this state of things must exercise on the birth- and death- tables is obvious, and should serve to warn us how careful we must be in arriving at what on a previous page has been referred to as a "primary "statistical quantity" in matters of vital statistics, before applying to it the "scientific procedure involving the employment of "statistics" of Professor Ingram.

It is therefore satisfactory to know that at the first meeting of the International Statistical Institute it will be proposed that the first work of the Institute shall be to consider what are the points in regard to vital statistics that it is most essential to be informed upon, and how far it may be possible to assimilate the returns in such matters of the civilised countries of the world. No better or more useful contribution to economic knowledge could be made by

* "La mortalité des petits Parisiens est affligeante; ils vont, suivant un mot "populaire, 'paver' les cimetières des campagnes, où on les envoie en nourrice. Il "n'en subsiste plus que la moitié environ vers la deuxième année, lorsque tout ce "qui n'est pas mort est rentré à Paris."—"Question de la Population en France," &c., p. 22.

the distinguished statisticians whom the formation of the Institute has brought into relation with each other.

I cannot conclude the remarks which I am on this occasion permitted to make without reference to another subject which must be one of engrossing interest in a commercial centre such as Birmingham. The subject of currency and prices seems to me to be one as to which the economist, whether orthodox or latitudinarian, is distinctly waiting on the statistician. Has the currency of the world fallen, through interference here, and non-interference there, into a condition that has told adversely on the commerce of the world? In what year, or during what period of years, were prices at the normal level which may serve as a starting point? Have prices since then fallen all round, and if so, by how much? or if they have not generally fallen, to what extent have they fallen in the cases in which the fall is admitted? These are clearly questions that should be definitely answered before we can discuss, except as a matter of speculative opinion, whether that fall has been to the advantage of the community as a whole or otherwise. But statisticians are not only divided in opinion as to the answer to the preliminary questions, it may be almost said that the opinion of no two are in accord. It is true that the investigation of the variation of prices by means of an "index number" seems to offer a means of forming some definite conclusion; but it must be admitted that the attempts to arrive at anything like a satisfactory index number have as yet been very far from satisfactory in their result. It cannot be maintained that any comparison of the fluctuations in price of a selected number of principal articles of export or trade, or even of the ratio of all the articles dealt with in the "Statistical Abstract" to the whole volume of foreign trade can ever furnish a measure of the many sources of expenditure that make up the total cost of living. The inquiry is one that seems at the first blush attractive almost to fascination; and it is one that has for many years past exercised the ingenuity of careful thinkers. Mr. Joseph Lowe* more than sixty years ago devised a plan to which Mr. Poulett Scrope, writing ten years afterwards, appears to refer in the following passage: "It has "been proposed to correct the legal standard of value (or, at least, "to afford to individuals the means of ascertaining its errors), "by the periodical publication of an authentic price current, "containing a list of a large number of articles in general use, "arranged in quantities corresponding to their relative consump-"tion, so as to give the rise or fall from time to time of the mean "of prices, which will indicate with all the exactness desirable for

* "The Present State of England." London, 1823, pp. 333—346, and Appendix, pp. 95—100.

"commercial purposes the variations in the value of money, and "enable individuals, if they shall think fit, to regulate their "pecuniary engagements by reference to this "Tabular Standard"*

Mr. Poulett Scrope, holding alarmist views as to the appreciation of gold, as shown by the tables of average prices drawn up by the Board of Trade for 1819-30, cordially approved such a plan; it was also shadowed forth by G. R. Porter and Thomas Tooke, the first part of whose "History of Prices" appeared almost simultaneously with Poulett Scrope's book. The name of Thomas Tooke and his work will always be associated with that of the late Mr. Newmarch, by whom the idea of an index number was further developed. The late Professor Jevons applied to the same subject his usual painstaking skill,† and it has only the other day been brought under the notice of so practical a body as the London Institute of Bankers by Professor Marshall,‡ in the discussion of a recent paper by Mr. Giffen. An ideal index number is not inconceivable; if attained it would give us not only the ratio between commodities so called as among themselves, but also the ratio between commodities generally and the precious metals which serve as the medium of barter between them. But the attempt to arrive at it is attended with infinite difficulty; the almost innumerable total of commodities is not, even when ascertained, a number of articles to be measured in height by an arithmetical scale, but rather a series of circles, sometimes concentric, at others mutually intersecting to a greater or less degree until the space left to each is a matter of the most elaborate and intricate calculation. To take an apparently very simple instance, if we would attempt to investigate the fall in the price of pig-iron, we may find ourselves involved in the consideration of an antecedent fall in the freight charges on Spanish hæmatite ore, no less than in that of a simultaneous fall in wages, consequent on a reduction in cost of food products consumed by the wage earners at the iron works; or we may have to take into account a decreased demand coincident with the development of a more economical and safer system of coal mining. The complexity of the conditions has led French statisticians to regard with very great suspicion the system of index numbers, if not to reject them as altogether misleading. I cannot myself share this scepticism. Without expressing an opinion on the economic effects that might arise from the establishment of a "Tabular Standard of Value," I cannot but think that from a patient investigation of this arduous

* "Principles of Political Economy." London, 1833, p. 406.

† "Money and Mechanism of Exchange," p. 333; *Journal of the Statistical Society*, June, 1865; Letter to "Economist," 8th May, 1869.

‡ "Journal of Institute of Bankers," June, 1886.

subject good results may follow, and that to the elaboration of some such common measure as an effective index number, we must ultimately look for the determination of the degree of prosperity or otherwise of trade at any given period of time. The valuable paper contributed by Mr. Stephen Bourne to this Section at Aberdeen* has served to show what has been done in this direction; and still more recently Mr. Palgrave† has constructed index numbers for England and France, extending from 1865 onwards, in which the relative importance of each commodity included is estimated and a value put on it; thus meeting the objection of the French economists, that in our index numbers we do not sufficiently distinguish the importance of each article. I cannot imagine any greater service that this Section could render to economic science than an elaboration of this most valuable adjunct to statistical and economic inquiry.

I do not venture to avail myself further of the licence as regards time which is accorded to me by custom in addressing you. The address of a Sectional President, unknown, I believe, in the earlier years of the British Association, and of comparatively modern origin in this Section, has attained in the hands of my predecessors in this chair a high standard of excellence. Of the difficulty of maintaining this standard I am only too sensible. The conception and elaboration of the observations which I have laid before you have been attended with grave doubts on my own part whether I should not have done better in working up some point of economics or statistics that has either come directly under my own observation and attention, or that would have been of immediate interest at this present time, and in this particular place. Of such there would have been no lack, and for taking such a course there would have been ample precedent. But it appeared to me that the address of a President to the Section should, unless there be some special reason to the contrary, be something more than a Sectional paper, emancipated from the ordinary restrictions as to length, and by courtesy almost equally sheltered from the free criticism to which Sectional papers are subjected. I have preferred to attempt, inadequately though it may be, to show how narrow are the limits which divide economic from statistical inquiry, how inseparably associated they must ever be, how wide is the sphere of their joint action, and how cognate in their method they are to other branches of research which are inclined to arrogate to themselves exclusively the prerogatives of

* Printed *in extenso* in "Report of British Association," Aberdeen, 1885.

† "Third Report of Royal Commission on Depression of Trade," &c. (C–4797). Appendix B, pp. 312—90; "Memo. on Currency and Standard of Value in England, France, and India," by Mr. R. H. Inglis Palgrave.

science. In selecting for special, though cursory, mention, two points of particular interest to the economist and the statistician, namely, vital statistics, and that fluctuating basis for the estimate of wealth which we call the standard of value; in pointing out how specially these are subject to those disturbing influences which Professor Cairnes* has specially taught us always to reserve in matters of economic speculation; and in admitting how tentative have been, and still are, our efforts to grasp the complexity of their conditions, I trust that I have not in any way derogated from the dignity of the cause which we are here assembled to advocate and to advance. The formulæ of economics and the lessons of statistics may not in all cases have been universally received or practically laid to heart; the ever-varying conditions of society may enforce a constant change in the appearance of social phenomena, and may lend an appearance of uncertainty to our conclusions, but it is not in this place, nor is it at the present time, that we need fear to meet the question, What has the science which you are investigating done for the good of mankind?

* "Logical Method of Political Economy," Lecture III, p. 85 (edit. 1875), *et al.*

Working Men's Co-operative Organisations *in* Great Britain.*

By Arthur H. D. Acland, M.P., *Senior Bursar of Balliol College, Oxford.*

[Read before the British Association, at Birmingham, in September, 1886.]

CONTENTS:

	PAGE		PAGE
I.—The possibility of the Accumulation of Capital in the Working Men's Co-operative Movement	755	III.—The Improvement of the Position of the Worker, or the lessening of the Antagonism of Employés and Employer in Consequence of such successful Utilisation of Capital	758
II.—The possibility of the successful Utilisation of such Capital by Working Men in Industrial Enterprise	756	IV.—Summary of Results	758
		V.—Conclusion	759

This paper deals not with so-called civil service co-operative societies, nor directly with the question of industrial partnership.

It treats mainly of working men's co-operative societies as they now are, and discusses their opportunities.

The anticipations and hopes of J. S. Mill and other writers on this subject are well known, and it may be well to see what measure of progress has been made of late years.

The question here considered is as follows:—

How far does the development of the working men's co-operative organisations in Great Britain, especially during the last twenty years, throw light on—

I.—*The possibility of the Accumulation of Capital in the Working Men's Co-operative Movement.*

The main source of savings is to be found in the co-operative stores or distributive societies, which do a business of considerably over 20 millions sterling a-year.

* This is an outline of a paper read at the British Association meeting at Birmingham, September, 1886. The writer's opportunities of observing the workmen's co-operative movement have been chiefly derived from the fact of his having had a seat on their Central Co-operative Board for the last five years. For fuller information reference may be made to "Working Men Co-operators," by A. H. D. Acland and B. Jones, Cassell's, price 1*s.*, or the Reports of Co-operative Congresses and other publications of the Central Board, which can be obtained by writing to the secretary, City Buildings, Corporation Street, Manchester.

The method adopted by these stores is as follows:—

Anyone may join on depositing 1*s.* The ordinary prices of the district are charged. Ready money payment only is allowed. The profits of the business are allotted to members in proportion to their purchases quarterly or half yearly, at rates varying from 1*s.* to 3*s.* on every pound's worth of purchases, according to the prosperity of the society. The sums so allotted must remain in the society till a share of 1*l.* has been made up. On this share and all future shares so accumulated the society gives 4, or more usually 5 per cent. This 4 or 5 per cent. is one chief reason of the desire to deposit money in the store. The result is a gradual saving of capital till there is often much more than can be employed in the business. The difficulty therefore with many societies is too much capital, not too little. The increase of business of these societies between 1865 and 1885 has been from 3 millions sterling per annum to over 20 millions sterling per annum. Nearly 20,000*l.* a-year is spent on lectures, news rooms, and other educational work. There are large sums of capital now lying almost idle at the banks.

The present result of the development above mentioned is the restriction of the amount which members may accumulate and the return of their savings to members who would prefer to leave them with the society. According to the Industrial and Provident Societies Act, 200*l.* may be held by each member as share capital. Both wife and husband might hold this amount, and societies can take loan capital besides. But in consequence mainly of former losses, and the (perhaps wise) timidity of committees, there is an increasing tendency to return savings to members, and limit the amount of shares tenable by members to 100*l.*, 50*l.*, or even 30*l.*

II.—*The successful Utilisation of the Capital Accumulated by Working Men in Industrial Enterprise.*

At the present time from 3 to 4 millions a year of productive or manufacturing business on a large or small scale is carried on, the capital for which comes mainly from the distributive or retail societies.

There are several forms of this:—

	£
(1). Manufacturing by the wholesale societies of England and Scotland. Annually about.....	200,000
(2). Tailoring, dressmaking, corn milling, baking, &c., by distributive stores	2,000,000
(3). Manufacturing by independent societies unconnected with the wholesale societies or distributive stores.....	1,500,000

(1). *Manufacturing by Wholesale Societies.*—There are two wholesale societies, one for England, one for Scotland. The

English society does a business of nearly 5 millions a year; the Scotch society about $1\frac{1}{2}$ million a year.

These societies are the property of the retail stores, which have created them for their own convenience for the supply of articles direct to their shops from England and abroad.

The committee of management or Directors are chosen by the votes of the retail societies from among their own ranks.

The societies have various depôts in England, in America, and on the continent.

The English wholesale society (like the retail societies) has had to refuse capital which its members (that is the retail stores) would willingly have deposited with it.

If this society had applied to the retail societies for capital to employ in manufacturing on which it could give a safe 5 per cent. interest, it might very probably have received 8 or 10 millions since its foundation twenty years ago. Its present capital is less than 750,000*l.*

It has adhered mainly to the work of the merchant, and has done comparatively little in the way of manufacturing.

It has two manufactories of boots and shoes, which do a business of 150,000*l.* a year. It also manufactures soap, biscuits, and confectionery.

Various reasons are given for not extending manufacturing more rapidly. One is the difficulty of locking up money in plant and buildings. Another is that the quarterly meetings of shareholders do not press the matter on the directors. The nature of this democratic organisation and control is somewhat interesting. The directors are not elected by special districts acquainted with them individually, but by the societies all over England. What is the likelihood, or the reverse, of getting "captains of industry" on to this board of directors?

At present no great sign of taking up productive work on a large scale is apparent.

The work that has been undertaken has, however, been well done in the main. Comparatively little money has been lost, and panics have been avoided.

(2). *Manufacturing by Retail Societies.*—Some of the large stores have erected large corn mills and large bakeries, and many societies employ tailors, dress makers, and the like; and some are now beginning to rent farms. In the large stores there is a great demand for milk, butter, and agricultural produce. Many of these societies, like the wholesale society, might, if they would, retain much larger sums of savings deposited with them by members at 4 or 5 per cent. than they now have.

Many committees prefer to run no risks and not to lock up

capital in co-operative productive enterprise. And they are not much inclined to put money into railway or other businesses managed by large capitalists.

The large co-operative saving for industrial purposes which would become possible if societies could utilise the money offered them is thus to a great extent curtailed.

The maintaining of the retail societies in a sound condition is, however, the first work to be done. The importance of avoidance of panics has to be constantly borne in mind.

Many disasters to retail societies have arisen from panics, and have been very serious. If a civil service store in London fails, another arises in its place. If a working man's store in a given town or village fails, the chance of successfully starting another may be retarded for a generation.

(3). *The Productive Societies, independent of either the Wholesale or the Retail Societies, but supported mainly by Co-operative Capital.*—Their total business is comparatively small, excluding the corn mills, which do a business of about 2 millions sterling a-year. The Manchester Printing Society does 35,000*l.* a-year, the "Hebden Bridge Fustian Company" 25,000*l.* Both these give the workers a share of the profits.

There is frequently a great difficulty in getting capital for societies of this class, especially at starting.

The failures of societies of this kind have been many in the past, and much discouragement has been the result. But as education and experience increase, there is no reason why many societies, like the Manchester and Hebden Bridge societies mentioned above, in certain kinds of easily managed industries should not succeed.

III.—*The Improvement of the Position of the Wage-Earners, and the lessening of Antagonism between Employer and Employed.*

Co-operation is sometimes defined as being only truly so-called when the worker has a share in the profits. This limitation has not been adopted here.

The Scottish Wholesale Society gives a share to its workers, the English Wholesale Society does not.

Some of the distributive societies give a share to workers and employés, the great majority do not.

The independent productive societies do so in most cases.

IV.—*Summary of Results.*

Large sums of savings are accumulated by co-operative societies. Much more might be forthcoming if means could be found for safely using it *in self employment*. There is a reluctance to embark

on any risky enterprise. Democratic management presents many difficulties. There is, however, a machinery in existence which when called upon can provide a large amount of working men's capital without difficulty.

V.—*Conclusion.*

How far is Walker's view, "Whatever may be true in politics, "the industry of the world is not tending towards democracy, "but in the opposite direction," to be justified by these facts?

Considerable qualification of this view may turn out to be necessary. But in any case the tendency of many observers is to undervalue the present co-operative work of working men, because they have not already in a few years solved the industrial problem.

The value of the work, as it now is, to a large proportion of the working classes of Great Britain, is very great. Remove its influence during the last forty years, and England would be very different from what it is.

We might take a country village store in Warwickshire as an instance of its benefits. This is a society managed by labourers, with 700 members, with a business of 18,000*l.* a-year, of which 2,000*l.* a-year is saved or returned to members, and owning freehold land and buildings (including twenty cottages) worth nearly 4,000*l.*

We might take some large North country town, and there are eight or ten towns which do a business of from nearly a quarter to nearly half a million. The educational work done in business training is considerable; the hopefulness on the part of the worker which is encouraged, and the value of the savings during a time of depression, must be borne in mind.

Industrially co-operation, as it now exists, has more influence than is often perceived. It is a great educator to the working classes in the methods of handling capital. It trains many able men, and labour becomes less and less looked upon as "a commodity" only.

Much of the best side of human nature is called out in this associated work. It is the development of this throughout business life without impairing efficiency and promptitude in management which is needed.

The capacity which has been developed by the movement was dormant and unsuspected forty years ago.

Many other similar unthought of developments are possible in the next half century.

MISCELLANEA.

CONTENTS:

	PAGE
I.—The Present Population of the United Kingdom, 1st April, 1886. By G. B. Longstaff, Esq., M.A., M.B....	760
II.—The Increase of Shipping and Dock Accommodation in the Principal Maritime Ports. By E. Fournier de Flaix. (A translation)	763
III.—Notes on Economical and Statistical Works	776
IV.—Quarterly List of Additions to the Library	783

I.—*The Present Population of the United Kingdom, 1st April, 1886.*

By G. B. Longstaff, Esq., M.A., M.B.

It is now five years since the last census was taken, and there are yet five years to elapse before the people will again be numbered; it may therefore be interesting to ascertain, so far as the data will allow, what is the population at the present time.

The official method of estimating a population in this country is to assume that the *rate* of increase has continued the same as it was in the decennium preceding the last census. This method has the advantage of simplicity, and is for many purposes sufficiently accurate, and, moreover, in many cases is the only method available.

Estimated by the official method, that is assuming all the conditions to have been the same in the five years 1881-85 as they were in the ten years 1871-80, we obtain the following result:—

Table I.—*United Kingdom. Population Enumerated 3rd April,* 1881, *and Estimated for 3rd April,* 1886, *on the assumption of the same Rate of Increase being maintained.*

	1881.	1886.	Change in Five Years.
England and Wales	25,974,439	27,777,240	Increase + 1,802,801
Scotland	3,735,573	3,938,810	,, + 203,237
Ireland	5,174,836	5,060,004	*Decrease* — *114,832*
United Kingdom	34,884,848	36,776,054	Increase + 1,891,206

A population is increased by (1) births, (2) immigration; it is decreased by (3) deaths, (4) emigration.

At present the data available for the determination of these four factors are not sufficient to completely account for the movement of the population in the intercensal period. In Ireland the registration of births and deaths is still imperfect; in the returns

of immigration, foreigners and persons of British and Irish origin have only been distinguished since 1876; lastly, there is no record of the exchange of population between the United Kingdom and the continent of Europe.

But admitting all these imperfections, it is still possible to check to some extent the official estimate of the population. Thus, the births and deaths actually registered may be compared with estimates framed on the births and deaths similarly registered in the past decennium. For this purpose it is necessary to assume a population, viz., the arithmetical mean of the estimated population in 1886 as given in Table I, and the census population of 1881.

TABLE II.—*United Kingdom. Births, Deaths, and Natural Increase in the Five Years, 1st April,* 1881, *to 31st March,* 1886. (a) *Estimated on the assumption of the Mean Annual Birth-Rates and Death-Rates remaining the same as in the Decennium* 1871-80, *and taking the Population to be the Arithmetic Mean between that of the Census of* 1881 *and that given for* 1886 *in Table I; and* (b) *as Actually Registered.*

	(a) Estimated.			(b) Registered.		
	Births.	Deaths.	Natural Increase.	Births.	Deaths.	Natural Increase.
England	4,765,086	2,874,371	1,890,715	4,468,717	2,603,257	1,865,460
Scotland	669,014	415,568	253,446	633,013	371,140	261,873
Ireland	673,708	464 150	209,558	599,705	451,052	148,653
United Kingdom	6,107,808	3,754,089	2,353,719	5,701,435	3,425,449	2,275,986

From this we see that the figures differ considerably; for the present purpose the natural increase is the most important.

TABLE III.—*Excess or Defect of Registered Natural Increase in the Five Years, 1st April,* 1881, *to 31st March,* 1886, *compared with the Estimated Numbers.*

England	defect −	25,255
Scotland	*excess* +	8,427
Ireland	defect −	60,905
United Kingdom.....	defect −	77,733

These tables show that the births have fallen short of the estimate in each of the three kingdoms, but the same is also true of the deaths. In Scotland the deaths are so much below the estimate that the natural increase is above it, in spite of the diminished births. In England and Ireland, as well as in the United Kingdom as a whole, the net result is a falling off in the natural increase of 77,733.

But this loss is comparatively insignificant; it is in the emigration figures that the greatest change is apparent.

Several comparisons may be made, but in every case the *half*

of the figure for the *ten* years 1871-80 will be set against the corresponding figure for the *five* years 1881-85.*

TABLE IV.—*Emigration and Immigration recorded in the United Kingdom in the Five Years* 1881-85, *compared with Half the Amount for the Ten Years* 1871-80.

	Half Decennium, 1871-80.	Quinquennium, 1881-85.	Increase.
Gross emigration, including foreigners	1,114,198	1,771,245	657,047
Gross emigration, British and Irish origin only	839,460	1,292,309	452,849
Excess of emigrants over immigrants (including foreigners)	714,985	1,273,818	558,833
Excess of emigrants over immigrants (British and Irish origin only)	535,561†	934,263	398,702
Emigrants of British and Irish origin, less total immigrants‡	440,247	794,882	354,635

† The number of immigrants of British and Irish origin is not given in the Board of Trade returns for the years 1871-74, but has been calculated on the assumption that the proportion of British and Irish to the total immigrants was the same as in the five years 1876-80. A calculation based on the proportion in 1881-86, gives a result not very different, viz., 528,922.

‡ That is to say, assuming that all the foreign immigrants stop in England, none passing on to the continent of Europe.

Thus in whatever way the emigration statistics of the two periods are compared, we find a large excess for the more recent period, varying according to the method of comparison adopted from 354,635 to 657,047, the best number for the purpose in view being probably 398,702, or the net emigration of persons of British and Irish origin.

It has been shown that the natural increase for the five years has fallen short of the expected number by 77,733. Since the other indeterminable factors of the problem are known to be relatively small, there appears to be good reason to believe that on 3rd April, 1886, the actual population of the United Kingdom was 398,702 + 77,733 = 476,435 fewer than the official estimate; that is to say, in place of being 36,776,054, it was only 36,299,619. By substituting this latter number for the officially estimated population, no doubt a close approximation to the true birth and death-rates would be obtained.

* It will be seen that the emigration statistics are given for the natural years, and not from April to April as is done in the case of births and deaths. This is necessitated by the lack of quarterly returns of immigrants. It is not likely, however, that this causes any appreciable error. The emigrants of British and Irish origin in the first quarter of 1871 were 24,106, against 28,788 in the first quarter of 1881, and 31,102 in the first quarter of 1886. Thus half the number for the decennium is 2,342 under the truth, and that for the quinquennium understated by 2,314, so that these two small errors almost exactly counterbalance one another.

Owing to imperfect registration in Ireland, and the lack of returns of inter-migration between the three kingdoms, it is not possible to estimate at all accurately the growth of the population in England, Scotland, and Ireland respectively. We have, however, some clues to the changes in the nationality of the emigrants, and the recorded natural increase in each kingdom.

TABLE V.—*Emigrants of English, Scotch, and Irish origin in the Five Years* 1881-86, *compared with Half the Number of like Emigrants in the Ten Years* 1871-80.

	1871-80.	1881-85.	Excess.
English	485,282	760,124	274,842
Scotch	82,826	133,527	50,701
Irish	271,352	398,658	127,306
Total	839,460	1,292,309	452,849

TABLE VI.—*Excess of English, Scotch, and Irish Emigrants in last Quinquennium, also Excess or Defect of Natural Increase over Estimate for like Period.*

	English.	Scotch.	Irish.
Excess of emigrants	274,842	50,701	127,306
Change in natural increase	− 11,822	+ 6,648	− 60,811
Total deficiency	286,664	44,053	188,117

The totals in Table VI are, roughly speaking, 1 per cent. of the estimated populations of England and Scotland, and $3\frac{1}{2}$ per cent. of that of Ireland. It must, however, be remembered that many Irish emigrate from England and Scotland.

Alike on commercial and on imperial grounds it is a matter for regret that out of 1,292,309 emigrants of British and Irish origin who left these shores during the past five years, no less than 842,547, or 65 per cent., preferred the United States to any of our colonies. It is perhaps some consolation to learn that whereas 57 per cent. of the English and 59 per cent. of the Scotch emigrants went to the United States, as many as 82 per cent. of the Irish chose that country for their new home.

II.—*The Increase of Shipping and Dock Accommodation in the Principal Maritime Ports. By* E. FOURNIER DE FLAIX. (Translated from the *Journal des Economistes*, October, 1886.)

THE impetus given to commerce by the development of the railway system in the principal European countries and in America during the second half of the present century, has been of such

an extraordinary character, that for some considerable time past universal attention appears to have been directed almost exclusively to the extension of the various ways of internal communication, such as railways, international tunnels, and roads of every kind. Other causes have contributed to divert public attention from the equally important question of the maritime ways of communication. Railways indeed have a widespread political, economic, and military influence; they are everywhere immensely patronised, and by all classes of society. Travellers and statesmen, military men and tourists, merchants and agriculturists, politicians of all kinds, find in the railway an instrument of action, of profit and pleasure, equally adapted to their tastes and their requirements.

The same cannot with equal truth be said of maritime ways of communication. Although Europe is exceptionally well favoured as regards her sea ways, the sea itself is somewhat remote from the greater part of the population of the continent, if we except Italy and Greece. According to a tradition of the ancients, the British Isles must not be taken into account as forming an integral part of the European continent—*et penitus toto divisos orbe Britannos*. There are vast numbers of Europeans, it may be observed, who have never even set eyes upon the ocean, and there are many who have never once in their lives visited a sea port. And again it must not be forgotten that the principal European capitals, which exercise so powerful an influence over the direction of public opinion, are situated at some distance from the seaboard.

It is not therefore surprising that the Governments and the people of the various European States, impressed with the wonderful and, to them, essentially tangible results of the development of the railway system, should to some extent have lost sight of the importance of maritime communication, the requirements and profits of navigation, and the functions of the chief ports. It must, however, in justice be observed that the preference given to railway over maritime questions is not the same in all countries. In England for example, by force of circumstances, it is unknown; her insular position, her colonial possessions, the movement of her emigration and commerce have all combined to render the question of maritime navigation one of paramount importance.

Again, in Germany the importance of the emigration movement, and the independence of that powerful maritime centre, Hamburg, which has only very recently been absorbed in the German Union, have exercised a similar influence. In the United States and in France it is, however, very different, the preference being entirely given to railways. As regards the former country this may be taken as the result of the vast extent of territory brought under cultivation, and of the immense resources found by Americans in their internal ways of communication. The same cannot altogether be said of France. This country is one of the most highly favoured in the world as regards her maritime position, and although her railway system has undoubtedly contributed to the prosperity which she now enjoys, it has not exercised the same influence as in States exclusively continental such as Germany, Hungary, Russia, and even the United States.

The wars, however, of the revolution and the empire having ruined not only the maritime commerce and the navy, but also the colonies of France, her maritime interests were lost sight of, and the opportunities offered by her geographical position were neglected. Politics also to some extent contributed to this end. The French maritime population, although distributed over a considerable extent of territory, are far removed from the centre of government; they are in fact in a decided minority, and their interests would almost appear to be a matter of secondary consideration. A decisive proof of this is afforded by the fact that statesmen and politicians have for several years past looked upon all maritime questions as of minor importance only. When the question of the regeneration of France became a burning one, enormous sums were voted for the construction of railways, works which were really undertaken in many cases merely for electoral purposes, while, on the other hand, the grants made to the various sea ports were so small and so uncertain, that without the direct intervention of the Chambers of Commerce the most urgent and necessary works would never have been either undertaken or continued.

The improvement in the foreign trade of France dates from the later years of the restoration. The maintenance of peace, the increase of public wealth, and the general progress of Europe, have all exercised a very favourable influence upon the ports of Marseilles, Bordeaux, and Nantes, which were in so prosperous a condition in 1789. It was only in 1831 however that the volume of trade attained the same proportions as in the year 1789. The lengthened crisis brought on by the Revolution having passed, maritime commerce recovered her lost ground, and renewed confidence resulted in a fresh investment of capital. Considerable progress was made between the years 1825 and 1850, and the entrances and clearances of vessels increased from 1,290,000 tons to an annual average of 3,150,000 tons; but from 1850 to 1883 the increase was even more marked, as in the latter year the figures reached 27,785,116 tons, that is more than twenty times greater than the tonnage in 1825, and almost nine times that in 1850, exclusive of the coasting trade.

This improvement has been of a universal character, all nations having participated in it. In 1850 the tonnage of the principal maritime nations, exclusive of Greece, was 7,693,178 tons sailing, and 285,189 tons steam; in 1883 it was 12,706,825 tons sailing, and 5,865,172 tons steam, a ton steam being estimated as equivalent to 3 tons sailing. The amount of cargoes carried, the number of ships and the frequency of their voyages, do not form the only standard by which the progress of maritime navigation may be gauged. Since 1830, and particularly since 1850, two other facts should be taken into consideration, namely, the application of steam to maritime navigation, and the changes that have been effected in the capacity of vessels. The dimensions of vessels and their rate of speed have been increased in proportion to the development of maritime commerce influenced by competition. Steam has considerably accelerated the alterations that have been

effected, but the changes themselves were antecedent to the application of steam to maritime navigation.

The French ports have for some considerable time past, by reason of their internal organisation, kept pace with the progress of maritime commerce and the changes effected in navigation. In France not only do the sea ports form part of the public property, but their control is vested in the hands of the State, and is administered by the Department of the *Ponts et Chaussées*. In constant communication with the Chambers of Commerce, who are themselves charged with the duty of permanently superintending the ports, this Department has made the most praiseworthy efforts to place and maintain the French ports in a state of efficiency, and in a condition to meet all the demands that might be made upon them. Even as early as the year 1848 many useful improvements had been made, but vast difficulties had to be contended with in the endeavour to keep pace with the increase of trade. One of the principal obstacles is in connection with the organisation of the *Ponts et Chaussées* itself, as sufficient inducements are not held out by this department to retain able and experienced engineers in their service. Moreover it has frequently happened that engineers have been often removed in the middle of some important and special work, at the very moment they had overcome the initial difficulties, and had gained the necessary experience and knowledge to enable them to bring it to a successful issue, while those by whom they were succeeded were by no means qualified to resume the work where it had been left off. Thirty years ago this was felt to be a serious inconvenience, while to-day it is a matter of the very greatest moment.

The second difficulty is of a totally different nature. At first sight it would appear that great advantages must inevitably accrue from the ports being at the same time public property, and under the administration of the State, but although these advantages cannot be entirely overlooked, they are less appreciated at the present day than they were formerly. In the northern countries the administration of the ports is vested either in the towns of which they form a part, or in various corporate bodies, and occasionally the ownership is a little complex. Such is particularly the case with regard to the ports of London, Liverpool, Antwerp, Rotterdam, and Amsterdam. The superiority of these ports as regards their facilities and accommodation for shipping over the French ports cannot be denied, and this may perhaps be accounted for by the fact that the revenues derivable from them are applied exclusively to their benefit, and also that each corporation or municipality is interested in providing and procuring everything indispensable for the advancement of a port, which in itself is only an instrument of production.

In France, as long as the Government has been in a position to provide the necessary funds for keeping up the ports—although it may be remarked it has stopped there, and has not applied for their benefit and maintenance the tonnage and statistical dues paid in them—and as long as the progress of maritime navigation was not making very rapid strides, the state of affairs was not

so bad, but of late years it has become intolerable. The requirements have largely increased. Four millions sterling are now urgently needed for the port of Havre, and over two millions for Bordeaux; and the State being pledged to vast unremunerative expenditure of every description, it is not in a position to advance these sums, which are rather under than over what is actually required; while as regards the Chambers of Commerce, they in their turn are only able to provide sufficient funds to guarantee the loans which they have been obliged to contract, by resorting to commercial and local taxation, which the inhabitants of the various sea ports are obliged more or less willingly to pay.

For many years past these questions have excited considerable interest and attention, since public opinion has been more and more brought to bear upon the subject of maritime navigation. The magnificent results of the Suez Canal, the gigantic enterprise in Panama, the colonial and emigration movements, the establishment of the great transatlantic lines, the prosperity of the principal French maritime centres, the development still more marked of the ports of Antwerp, Hamburg, and Glasgow in the north, and Genoa, Trieste, and Barcelona in the centre of Europe, have all had the effect of bringing about a change of opinion. There can be no question that the era of railroads is over; they have produced all their economic effects, and it is now fully recognised that the effective administration of the maritime ports contributes more to public prosperity than an extension of the network of railways; a new era has commenced, and maritime interests are at present placed in the very front rank.

Moreover it is not the progress alone of maritime navigation that should be taken into consideration, that of internal water communication is equally important. For example we find that Paris and Berlin have become two of the principal river ports. At the former the movement exceeded 5 million tons in 1884, and at the latter 3 millions, and the importance of Hamburg is partly derived from the development of Berlin. And here it may be not out of place to devote some attention to the question of what has been done in foreign ports, and what has been accomplished, and still remains to be done, in the French ports, and we will commence by first noticing the former.

The efforts of foreigners to improve their principal ports have been unceasing, and the result especially in the north of Europe has been that they are in a far better and a far more efficient condition than those of France. Several causes have contributed to this end, the first and the most important being found in legislation. The sea ports of Europe are not exclusively public property, and nowhere are they to be found entirely under State control. The port of Hamburg does not belong to the German Government, although the Republic of Hamburg in reality forms part of the empire; the port of Antwerp is managed by the town of Antwerp itself, and the same may be said of Amsterdam and Rotterdam. In England the State is recognised as the direct owner of the foreshores, and it is for this reason that it is interested in the direction and administration of the ports, although it must

be remembered that this interest does not take the form of direct intervention. The port of London is under the control of four administrations, the Board of Trade, the Board of Works, the Thames Conservancy, and the Trinity House. The Board of Trade represents the State, but only exercises a right of control; the others are independent of the State, although some of their members are appointed by the Government. At Glasgow the Government has delegated its rights to the town council. At Liverpool the ports and the docks are managed by a board composed of twenty-eight members, four of whom are appointed by the Government; and there are even in England ports which are strictly private property, such for instance as Cardiff, which belongs to the Marquis of Bute.

Again, in England, Holland, and Belgium, and in the case of the town of Hamburg, the question of the ports is directly identified with the vital forces of the country. Ports constitute the principal national element, and consequently no sacrifice ought to be considered too great to place and maintain them in a condition to satisfy the requirements of the country. No more striking example of this can be quoted than the port of Antwerp. Antwerp is now, and for some considerable time past has been considered as the very life of Belgium itself, and it took over thirty years of negotiations for Belgium to obtain the free administration of her port. It is evident from the use she has made of it since the year 1868, that neither England, Holland, nor France have over estimated the extreme importance of Antwerp.

The independence of the State, and territorial interests combined have had, for the ports of northern Europe, two very important results. On the one hand they have not been dependent for their maintenance, extension, or repair on State funds, and on the other hand their administration, and the execution of works requiring the expenditure of much time and money, have been confided to engineers *ad hoc*, to experienced men attached in some way to the ports themselves, and with whose interests their own have been to a great extent identified.

In France the rivers, lakes, bays, and ports being exclusively public property, the Government has made no distinction between ownership and administration. It administers and consequently provides for the expenses, the ports receive almost everything gratuitously, not quite all the assistance they require it is true, but whatever the State can spare for them. If for any reason the grants from the Government fall below what is actually needed, the ports themselves have no means of supplementing them. In the north of Europe, at Antwerp, Amsterdam, Hamburg, London, and Liverpool nothing is free, every vessel must pay for services rendered in each port, and every English, Belgian, Dutch, and German sea port has for each description of service rendered a tariff of dues drawn up and levied by municipal bodies, corporations, or by special administrations. On this point much valuable information has been given by M. Pastoureau Labèse, hydrographic engineer at Bordeaux, and by MM. Plocq and Laroche in their review of the commercial ports of northern Europe.

It is in England, owing to the development of maritime commerce and to the increase of local taxation, that the greatest works have been carried out in connection with ports, and that the organisation of the latter has reached the highest state of perfection. There is nothing that can be compared to the London docks, the docks of Liverpool and Birkenhead, and to the canalisation of the Clyde at Glasgow. At the beginning of the present century Liverpool had a population of scarcely more than 5,000 souls, and Glasgow of 13,000, while at the present day they number respectively 550,000 and 675,000. The docks of London and Liverpool date back for more than a century, and in Thornton's book upon London, published in 1780, a complete plan of the docks is given. France certainly cannot for many years hope to possess ports like London, where 16 millions sterling have been expended in the construction of the docks; or like Liverpool, whose docks, including those of Birkenhead, cover an area of 560 acres. In the latter port during the year 1880 the tonnage, quay, and anchorage dues produced to the town a revenue of 1,200,000*l.*, 1 million of which was expended upon the port itself.

The organisation of the port of New York, now the premier port of the world, is at least equal to if not better than that of London. The docks, piers, wharves, steam ferries, sheds, and warehouses established on the Hudson and the East River, on each side of the peninsula occupied by New York, present facilities and are provided with accommodation for shipping of which but a very faint conception can be formed in France by those who have not visited this port.

For the purpose however of comparison it would be better to confine our observations to the European ports both in the north and in the centre, referring for the former to the publication of MM. Plocq and Laroche, and for the latter to the very excellent atlas published in 1884 by the French Minister of Public Works, and also to the accounts given from time to time in the *Annales du Commerce Extérieur*. To these documents we must also add those emanating from the Chamber of Commerce and the Town Council of Bordeaux. The port of Bordeaux, so flourishing in the last century, and the activity of which excited the admiration of Adam Smith and of Arthur Young, is of all the great French ports the one which has suffered the most from the effects of the revolution, from the ruin of the French colonies, and from maladministration. Of late years however it has shown decided improvement, owing in great measure to the energetic efforts of the Chamber of Commerce and the Municipality. In the autumn of 1884 representatives of the Chamber of Commerce and of the Municipality of Bordeaux visited the ports of Antwerp, Rotterdam, and Amsterdam, and on their return they published a very interesting report of their investigations, which has been of considerable assistance in the preparation of the present review.

Maritime ports may be divided into two distinct categories, ports properly so called, and ports on tidal rivers; and these latter show to considerable advantage. New York, London, Liverpool, Glasgow, Antwerp, Hamburg, Rouen, and Bordeaux

are all river ports; while Havre, Marseilles, Barcelona, Genoa, and Trieste are all sea ports. The two principal ports of France are sea ports, and they do not appear to have derived very much benefit from this fact, for taking Havre, it would be difficult to find a port in northern Europe presenting so many obstacles.

Antwerp is now the most important of the continental ports, and M. de Molinari has written a very interesting account of its history. As far back as the sixteenth century Antwerp enjoyed considerable commercial prosperity, and the Dutch in obtaining through Munster the closing of the Scheldt, imagined that they had assured the predominance of Amsterdam by ruining Antwerp; but in destroying Antwerp they destroyed the trade of Amsterdam also. Having recovered some of her lost ground in 1815, the port of Antwerp made a steady but slow progress until 1840, when the entrances of vessels amounted to 179,291 tons. Since that date its progress has been extraordinarily rapid, and at the present day it is the port that attracts the greatest attention in continental Europe. Antwerp is a river port, the same as London, Bordeaux, or Rouen, situated at a distance of 59 miles from the sea. It is on a small creek on the right bank of the Scheldt, and is fed by regular tides, the flood lasting five hours and a half, and the ebb tide lasting seven hours and a half; the tide has a mean rise of $14\frac{1}{2}$ feet, and the average depth of water is about 22 feet 3 inches. The width of the Scheldt in front of Antwerp varies between 400 and 450 yards. The navigable channels of the Scheldt below Antwerp and the sea are well marked by lighthouses, beacons, and buoys, and the average amount of deposit annually dredged from the docks is about 31,400 cubic yards, and in the channel outside about 32,700 cubic yards.

In 1863 the movement of shipping at the port of Antwerp amounted to 1,200,000 tons, and it rose in 1884 to the enormous total of 7,555,249 tons, or exactly half the tonnage of Liverpool, an increase of 265,000 tons annually. This tonnage compares very favourably with that at Hamburg and Marseilles, the former being 6,706,000 tons and the latter 7,261,731 tons in the year 1883. In 1882 Marseilles ranked as the first continental port as regards the tonnage of vessels entering and clearing in the oversea trade, but taking the coasting and the oversea trade together, it had already lost its position, for while in that year the total tonnage of all vessels entering and clearing at this port only amounted to 8,060,299 tons, at Antwerp it exceeded 11,000,000 tons. Thus Antwerp has become, in point of tonnage, the first port of continental Europe, and her ocean tonnage has increased so rapidly as to tax to the utmost all the resources of the port for its accommodation. Her superiority was not, however, attained without the greatest efforts and sacrifices, more than 6,800,000*l.* having been laid out in the port, 4,000,000*l.* of which have been expended during the last ten years.

At the present time the port of Antwerp consists of nine docks, covering a superficial area of 400,000 metres, exclusive of two other docks in course of construction, the African and American. The Kattendyk dock has an area of 23 acres, and the

quays upon the river front present a length of 3,827 yards, with a width of 100 yards. At the extremities of the quays the port itself is in direct communication with the railway, and a commodious station for goods and passengers has been erected, so that goods in transit can be quickly and conveniently despatched. The extent of water in the port when the African and American docks are completed will amount to 150 acres, and the length of quays to 11,207 yards; and even this extension of accommodation will not do more than keep pace with the increase of trade. As regards the depth of water in the docks, it is sufficient to admit vessels of the largest size, and the African and American docks will offer a draft of water of from 45 to 60 feet.

We now come to the question of the administration of this magnificent port, which is in the hands of the municipality of Antwerp, by whom all the regulations affecting it are made, and who have the supervision of the docks, the appointment of engineers, and the revision of the dock dues. A general order of the 1st January, 1884, established for the benefit of the municipal funds, navigation dues payable by sailing vessels and steamers alike, varying from 47 to 82 centimes per ton, together with a tax of 16 to 28 centimes per ton for discharging cargoes on the quay. The Belgian Government have co-operated in the development of the port of Antwerp by large subventions, they exercise a power of control over the municipality, and they levy the lighting and pilotage dues.

Owing to the alterations and extensions that have been effected in the port of Antwerp, its importance, which has gone on steadily increasing, is now recognised by shipowners of every nationality, and connected as it is with all the railways of Europe, it enjoys advantages that few continental ports possess.

At Rotterdam considerable progress has been made, but the direction it has taken has not been quite the same. Rotterdam is a river port, situated at a distance of about 19 miles from the sea, and its total trade amounts to about 4 millions of tons. It was originally a very inconvenient port, and the facilities it offered for the rapid loading and discharging of cargoes, and its accommodation for shipping generally, left much to be desired, added to which the Maas itself did not possess many of the advantages enjoyed by the Scheldt. It became therefore necessary to effect a change in the port of Rotterdam, more particularly as extensive alterations had already been commenced at Amsterdam, and the State came to the rescue by effecting improvements in the channel, and particularly in the mouth of the Maas, in which undertaking nearly 2,400,000*l.* have been expended, and also by constructing the port of Koningshaven, on the left bank of the river, which has effected a very considerable alteration. The old port and the roads were situated on the right bank, they are now connected with the left bank by two bridges, and on the space situated on the left bank, docks specially constructed for the accommodation of large sea-going vessels have been constructed, while the old port and the roads remain at the disposal of smaller ships and those engaged in the coasting trade. The town of Rotterdam, which owns the land

on the left bank, has leased the greater part of it to the Société de Commerce, which has constructed three docks, with a total length of quay amounting to about two miles and a half. These basins communicate, without locks, with the Maas, and they are provided with railway lines, warehouses, sheds, weighbridges, and steam and hydraulic cranes. The dock dues are extremely moderate, and the revenues derivable from them being insufficient to cover the expenditure, the town of Rotterdam, which, either directly or through the Société de Commerce, has the management of the docks, did not hesitate to have recourse to taxation to make up the annual deficit. As in the Scheldt, the pilotage and light dues are alone under the direct control of the State, while the towage, ballasting, and discharging of ballast are undertaken by private enterprise.

At Amsterdam, situated between the Zuyder Zee and the North Sea, greater difficulties had to be contended with, these consisting less in the enlargement of port than in an improvement of the means of access to it, and it was to the execution of this important work that Amsterdam owes its splendid port, exceeding eighteen miles in length. Formerly vessels came up to Amsterdam through the Zuyder Zee, in a creek, at the end of which Amsterdam was situated, but when the draft of vessels increased, it became no longer possible for ships to come up the creek, and it was found necessary to construct the Helder Canal, or the North Sea Canal, which with a length of fifty-two miles and with a depth of about nineteen feet, has in its turn become unable to meet the requirements of navigation. The engineers who were then consulted, suggested, with a view to increase the facilities of access to Amsterdam, that a canal seventeen miles long should be constructed in direct communication with the North Sea, and that a dam should be erected on the side of the Zuyder Zee, so as to convert the creek of the Y into an estuary or port. This dam on the east, and the locks of Yminden at the outlet of the canal on the North Sea on the west, form the boundaries of an immense floating dock, with water always kept at a uniform depth. Into this estuary the Amstel river, the Helder Canal, and all the Amsterdam canals flow, and it forms a veritable inland sea.

The administration of this vast port, the regulations affecting the docks, the tariff of dues, and the management generally, are in the hands of the municipality, subject to a certain State control. The port comprises nine docks, five of which are capable of accommodating vessels of the largest tonnage, and the quays have a total length of 12,027 yards. They are supplied with railways, cranes, sheds, and every modern appliance for the handling of cargoes. The Helder canal has a depth of over 25 feet, and a width varying from 60 to 120 yards. The entrance to it is protected by two jetties, which extend a distance of 550 yards into the sea, and form a vast outer harbour beyond the locks. In the execution of this enterprise, which reflects the greatest credit upon the Dutch engineers, a sum of over 2 millions sterling has been expended; while as regards the expenses of the port itself no estimate can yet be formed, but it is expected that they will exceed 600,000*l.*

Everything appears to point to the probability of Amsterdam regaining, through her port, her old commercial prosperity.

The movement of shipping at the port of Amsterdam in the year 1880 did not exceed a third of that at Rotterdam, while two years later the total tonnage entering and clearing amounted to 4,917,000 tons, representing a tonnage of 10,466,000 Dutch measurement; so it is evident that the town is reaping some reward for the expenditure incurred in the alterations and improvements of the port, and strenuous efforts are still being made by her to regain her lost rank as a maritime port. Following the example of Rotterdam, she also has been obliged to have recourse to taxation to make up the deficiency in her annual budget, and this taxation has taken the form of an income tax, at the rate of $2\frac{1}{2}$ per cent. To the estimate formed above of the expenses incurred in the extension of the port, should be added a sum of 800,000*l.* granted by the State to defray the cost of laying down railway lines. It may therefore be taken that a sum of nearly 4 millions sterling has altogether been devoted to the improvement of this port.

Taking next the three principal ports of Germany, namely Hamburg, Bremen, and Lubeck, it will be found that they differ very considerably in importance; for example, in the year 1883 the total movement of shipping in the latter port did not exceed 800,000 tons, so that we will merely confine our observations to the two former. Hamburg and Bremen have many points of similarity, inasmuch as they both belong to free towns, of which they constitute the vital element; they are both free ports, and they contribute to the Imperial Exchequer the former 120,000*l.*, and the latter 40,000*l.* They are alike in other respects, for example, their administration is vested in the hands of the State, the State being the town itself. The port of Bremen is Bremerhaven, which is situated at a distance of 37 miles at the mouth of the Weser; and side by side with Bremerhaven is a second port, that of Gerstemünde, which is under German jurisdiction. The State of Bremen has strained every nerve to raise Bremerhaven to the level of the principal maritime ports, and has furnished it with the necessary appliances for the rapid handling and transferring of cargoes—it has not even hesitated to expend a sum of 1,800,000*l.* for this purpose. To meet this outlay a tax on incomes and on commercial transactions has been imposed. Bremerhaven is one of the chief emigration ports of Germany, for we find that in the year 1883 111,305 emigrants embarked there, while the entrances and clearances of shipping in the previous year amounted to 2,250,000 tons, that is about one-third of the average movement of the port of Hamburg.

Hamburg has had no necessity to remove its port, although it is true that Cuxhaven has been established at the mouth of the Elbe; this however may be regarded more in the light of a harbour of refuge, where the pilotage and lighthouse services are concentrated, and where vessels drawing too much water are occasionally lightened. From Cuxhaven vessels proceed to Hamburg or Altona, which together actually form one commercial centre, but which are not placed under the same administration. The

distance from Hamburg to the sea is about 78 miles, but notwithstanding this disadvantage her prosperity is immense, and her port forms the very centre of the commercial activity of Northern Germany. In the year 1871 the tonnage of vessels belonging to the port of Hamburg amounted to 184,500 tons, while at the present day it exceeds 320,000 tons. The movement of shipping in 1846 amounted to 921,843 tons; in 1883 it exceeded 6,706,000 tons, while the population of the town increased from 339,000 in 1871, to 519,000 in 1885.

Since the year 1882 the activity of the port of Hamburg does not appear to have in any way diminished, for while in the former year the total entrances of vessels engaged in long sea voyages represented an aggregate tonnage of 3,030,909, in 1885 they exceeded 3,704,000 tons. The port itself is under the management of three commissioners, nominated by the Senate and the legislative body, and it is maintained in a perfectly efficient condition, the average annual expenses in connection with this work amounting to about 40,000*l.* This sum not being covered by taxation, the deficit is made up by the State. It should be observed that in this estimate of expenditure the amounts disbursed in extensions and improvements are not included, and these during the last ten years may be roughly estimated at nearly a million sterling. To meet this outlay it has been necessary to resort to taxation. The port of Hamburg, like that of Altona, is situated down the river, and is one of the finest and most commodious in Europe. It is on the northern branch of a bend of the Elbe, and is composed of a series of anchorages of varying depths, and of extensive basins, such as Grasbrok, Sandthor, Magdebourg, and Brookthor. All these docks are admirably supplied with railway lines, warehouses, and an exceptionally good supply of cranes.

In the centre of Europe, in Italy, Austria, and Spain, very important operations have been undertaken in connection with the improvement of the various maritime ports, and considerable progress has been made. The movement of shipping in Italy amounted in 1883 in round numbers to 11,000,000 tons, to which the port of Genoa contributed 3,000,000. In this port the Government, assisted by the municipal council, have made very considerable alterations and improvements, the greatest and most important being the construction of a jetty, which will provide Genoa with a magnificent outer harbour. Similar works have been undertaken at Trieste, where the movement of shipping, which has doubled itself since the year 1850, amounted in 1882 to 2,032,000 tons. At the latter port three jetties have been constructed, thus transforming the old roadstead into three basins, with an area of 86 acres, a length of quay extending over 3,000 yards, and a depth of water varying between 30 to 40 feet. Another large jetty or mole, nearly a mile in length, has given to Trieste a sort of outer harbour. In the prosecution of these undertakings over a million sterling has been expended.

The same desire to keep pace with the ever increasing requirements of shipping is everywhere apparent in the Spanish ports, for

notwithstanding the uncertainties of the political situation, this country is steadily recovering her lost ground. In the year 1883 the total tonnage of vessels entering and clearing with cargoes and in ballast in Spanish ports exceeded 19,000,000 tons. At Cadiz, Barcelona, and Santander improvements have been made in the ports, and the question of constructing a large outer harbour at Barcelona is now under consideration. These alterations have been effected in some cases by the municipality, in others by private companies to whom concessions have been granted.

Portugal also has lately devoted considerable attention to the initiation of important works, destined to effect a complete transformation in the port of Lisbon. This country is taking part in the general European progress, and she would appear to be about to resume her old rank among the nations of the world. Lisbon is a military station of the first importance, and it is estimated that the amount required to effect the necessary alterations and improvements in the ports will exceed 2 millions sterling.

As it is in the north, so it is in the centre of Europe, the development of maritime commerce having necessitated in all the ports the execution of considerable alterations and extensions. The towns themselves have not hesitated to bear their share of the burden, and to enable them to do so have resorted to taxation in one form or the other, and their reward has been increased commercial prosperity. The progress that has of late years been made, leaving on one side the English ports, has been so extraordinary that at the present day Antwerp ranks as the first maritime port in central Europe, and Hamburg disputes the second place with Marseilles.

It may be predicted that maritime competition, already so keen in the north, will become most serious in the Mediterranean; Italy, Spain, and Greece are shaking off their old lethargy, and are beginning to resume their old rank among maritime nations. The progress that has been made during the second half of the present century cannot be over estimated, every day sees an improvement in the maritime condition and prosperity of the Mediterranean races. Italy and Greece have both a very high birth-rate, and in the latter country particularly the population is rapidly increasing, while the former annually sends from her shores more than 100,000 emigrants. After England, Spain ranks as the second great colonial power, and both Italy and Spain are well represented by companies owning large and powerful fleets of steamers, such for example as the fleet of the Marquis del Campo, and the Rubatino, to which may be added the Austrian Lloyd's. A reference to the following table will show the number and tonnage of sailing and steam vessels belonging to the various European countries and the United States according to the latest returns available:—

Countries.	Sailing.		Steam.		Total.	
	Number.	Tons.	Number.	Tons.	Number.	Tons.
United Kingdom (1885)	17,018	3,456,562	6,664	3,973,483	23,662	7,430,045
Russia (1883)	4,411	401,340	379	99,214	4,790	500,554
Finland (1882)	1,670	272,147	207	10,958	1,877	283,105
Norway (1885)	7,154	1,448,912	510	114,108	7,664	1,563,020
Sweden (1884)	3,158	421,754	886	107,831	4,044	529,585
Denmark (1885)	3,046	188,923	281	89,815	3,327	278,738
Germany (total) (1885)	3,471	861,844	664	420,605	4,135	1,282,449
Holland (1885)	634	194,347	106	108,422	740	302,769
Belgium (1885)	11	5,053	54	79,809	65	84,862
France (1885)	14,329	507,819	937	492,396	15,266	1,000,215
Austro-Hungary (1884)	432	201,950	96	79,396	528	281,346
Italy (1885)	7,111	828,819	225	124,600	7,336	953,419
Greece (1884)	3,141	225,224	72	36,272	3,213	261,496
Chili (1884)	128	50,894	30	14,896	158	65,790
China (1885)	4	2,886	27	24,826	31	27,712
United States (1885)	1,937	1,101,593	182	186,406	2,119	1,289,999
Spain (1882)	1,674	286,164	389	304,192	2,063	590,356

III.—*Notes on Economical and Statistical Works.*

The Railways and the Republic. By James F. Hudson. London: Sampson Low, 1886. 489 pp., 8vo.

The agricultural depression, to a very large extent at the bottom of the dulness characterising almost every calling, has been the means of opening up a variety of questions which would otherwise still be lying unheard of. Certainly the question of railway rates raised mainly by the farmers must be reckoned among the most important we have had to deal with for some time past. The continued agitation in the direction of a reduction in rates has roused the railway companies to recognise their errors to a limited extent; since the deputation to the Board of Trade, considerable reductions have been made by certain companies in the freights on iron, and just lately we have to record the lowering of the freights on cheese. The reductions, nevertheless, are small, do not meet the demands, and can hardly be viewed in any other light than that of the proverbial sop to Cerberus. When railway companies have taken the trouble to spend money in the control of rival means of carriage —such as the canals for instance—it is not likely they will easily forego the advantages they thus expect to reap. The question of rates as it now stands before the country, naturally opens the whole question of the rights of the railway companies as compared with those of the public, and it is no exaggeration to state that we in England are as yet only on the threshold of our troubles with these servants of trade. Under the circumstances it will not be unprofitable to peep into some of the more common, but at the same time tyrannous, abuses which are burdening commerce on the other

side of the Atlantic, and of which Mr. Hudson is so able an exponent. A not uncommon circumstance is that of speculating managers, who destroy the earnings of a road by diverting traffic until they have bought up its shares, and then advance their price by turning business back upon it until they can sell the shares at a vast profit. This is a class of dishonesty only just known in England, but so ordinary does it appear to the Americans, that they think little of it, and certainly by the side of some of the gigantic swindles, it takes what is popularly called a "back seat." To enter a little into the commencement of the railway troubles, they seem to have originated in a senseless competition, by means of which the unthinking and credulous public have been induced to subscribe capital for the construction of parallel competing lines, of which the case of the Pittsburgh railways offers us a good example. Here we have for the extent of 140 miles three railways running side by side, sharing the same traffic, offering virtually the same service, and in times of depression destroying each other's profits. Under these circumstances it is natural that in time some of the rival lines should endeavour to amalgamate. Amalgamation is done either by forming a new company out of two or more old ones, at the same time liberally watering the stock, or by throwing the profits of the rival companies into one common fund, called pooling, and subsequently dividing the profits according to previous mutual arrangements, in which the rights of the shareholders—to say nothing of those of the public—are impudently ignored. As the companies become more powerful, they purchase competing lines. Such purchases are forced sales on the part of the original owners, who are compelled to sell on account of their would be possessors reducing rates to that depth at which the company with the shortest purse soonest goes to the wall. Not content with driving rival carriers out of the field, they buy up iron mines, collieries, &c., &c., and thus become shippers as well as carriers. This stage is attained by a system of discrimination in the frieghts whereby, to take a typical case (p. 61), a mine owner is charged so high a freight on his coal, that he can only sell at a loss, he consequently fails, and the railway company step in and buy his property. By such means the railway companies obtain the control of certain markets, in which the unfortunate consumers are the ultimate sufferers, for the railway companies being no longer servants of trade, now take up the position of masters. A pool of companies having obtained such control of a market, levy what charges they please, and the following figures will show how they abuse their trusts. At one time Philadelphia paid retail for its coal per ton $6·50 with 90 miles haulage; New York paid $5·50 with 120 miles haulage; Baltimore paid $6 with 188 miles haulage; and Boston paid $5·70 with 354 miles haulage. It is bad enough that they should thus arbitrarily fix the price of coal, but the uncertainty these companies have introduced into trade, by raising or lowering rates whenever it suits them so to do, and without warning, is a serious drawback to commerce. The railway companies have also at times charged 40 per cent. more on dressed than on live meat, and some have even had the audacity to demand assays of the ore carried by

them in order to charge accordingly. They explain these freight arrangements by stating they are neutral parties, and must hence equalise the cost to all parties! The natural conclusion is that they have friends to oblige in the forms of speculative directors and officials or of co-pooling companies. In most of the above cases the ultimate burden is borne by the inhabitants of the cities; but the power of the railway companies does not by any means end there. Out "of 270,000 acres of the anthracite coal lands in Pennsylvania, 195,000 are now owned by six railways," and with what result? A short time ago some of the private owners had determined to yield to the miners and grant an increase of wages, but the railway companies vetoed this by the simple expedient of raising the freight on the coal raised by these owners. The miners' wages remain at $350 to $400 per annum, for severe and hard work, so need we be astonished then at such events as the late Pittsburgh riots? We then come to the farmers' grievances. They complain bitterly that they have often to pay more for a short haulage than the settlers out west pay for a greater haulage. This discrimination in the freights along the line has been complained of in America in much the same way as by our farmers in England. It has been one of the main arguments of eminent men like Mr. Atkinson, that but for such discrimination the Western States would never get their produce to the Atlantic at all, and that the railway companies have helped the western men at no end of a sacrifice to themselves. It is so utterly opposed to experience to find a railway company sacrificing its profits for the good of others, that we may dismiss this specious argument for what it is worth, and call attention to the fact that, according to Mr. Hudson, the generally received statement that the American railway companies only make about $3\frac{1}{4}$ per cent. on their capital—a very good return in these times of depression—is only correct in appearance, for, as Mr. Hudson shows, in many cases the watering of the capital has been carried to such an extreme, that in reality the dividend on the actual capital of the United States railways for 1884 was no less than $9\frac{1}{4}$ per cent. Many of the companies do not wish to pool, and only do so because their neighbours have obtained the mastery over their traffic. Such companies are frequent seceders from the pool. To prevent such secession the poolers are now agitating for legislation enforcing the railway pooling contracts. Aware of the iniquity of their demands, and so blinded to all sense of public rights have they become, that they are now, in order to carry their demands, denying their liabilities as public carriers! They are demanding that the law should compel railway companies to form themselves into associations for the purpose of establishing rates by pooling organisation and so prevent unlicensed competition; the real purpose in view being the obtaining of profits on fictitious capital by abolishing competition. It appears hardly credible that any corporation or sets of corporations could claim such extraordinary powers, but we must remember not only are they a body of the highest influence, but they have proclaimed themselves, not without some show of success, as second only to the United States Government in power. It will have been seen how vast is the

railway evil with which the American Republic has to deal. The Americans have, in spite of their short career, shown themselves remarkably practical in dealing with financial and economical troubles; notwithstanding a ubiquitous class of dishonest schemers, whenever the main point at issue has been one of honesty, they have always shown themselves to be men of integrity. Judging therefore by the past, this iniquitous railway system will doubtless shortly be put an end to. The chief obstacles to reform lie in the facts that no traders single handed can hope to fight the railway companies, and that every State in the Union has its own railway laws. Several remedies have been proposed, those of Messrs. Cullom and Reagan being perhaps best known, but with these Mr. Hudson is not satisfied, believing as he does that the true remedy lies in binding the railway companies to allow traders to ship produce in, and to run, their own cars. This seems a doubtful enough opinion, but we do not enter into the discussion of it, our main object in these notes being to describe—for the sake of giving information—not to criticise. Mr. Hudson goes deeply into his subject, and appears to have studied it long and carefully. He might perhaps have shortened his work somewhat, but it remains a book well worth the reading of all who are interested in the coming struggle between the railway companies and the public. It is furnished with a good index.

Giornale degli Economisti. Edited by Dr. Alberto Zorli. No. 5, September, 1886. Bologna.

In the last number of our *Journal* we called attention to four new periodicals specially devoted to economical and kindred subjects. The Italians, quite amongst the foremost in all the more pressing questions of the day, have added one more to the list of periodicals referred to. The number before us opens with a short article by S. Achille Loria on the Competition of Prison with Free Labour; S. N. Colajanni follows with a review on the Connection between Misery and Alcoholism; S. C. Rosmini has an article on the Conversion of the State Lotteries into Savings Banks; while S. C. Bertagnolli has an interesting paper on the Idleness of the Peasantry. More than half this number is taken up with reviews of, and notes on, economical works and periodicals, the German and English titles of which are terribly mispelled.

The Ceylon Handbook and Directory. Edition of 1885-86. Compiled and edited by A. M. and J. Ferguson. Colombo (A. M. and J. Ferguson); London (Trübner and Co.) xlv + 900 pp., 8vo. 1886.

This now voluminous annual continues to increase in comprehensiveness and value, and forms one of the most complete statistical guides (the statistics cover nearly one-half the pages of the book) to any country to which we have had access. The selection of the statistics appears judiciously made, and in all cases the compilers have been careful to state from what sources they are derived. The book is furnished with a remarkably good index, but some of the folding tables are pasted in in a very careless print-obliterating manner.

Fifteenth Annual Report of the Local Government Board, 1885-86. *Supplement containing Reports and Papers on Cholera.* 363 pp., 8vo. London, 1886.

The scope of this work may be briefly stated. When in 1884 cholera in its worst form began its ravages on the continent, the Local Government Board very advisedly had a survey made of the English ports and other weak districts, in order to see what state of defence we then were in, and how far we were in a position to ward off the threatened attack. The report shows how carefully this survey was made, what the state of affairs sanitary was found to be, what remedies were proposed, and how far the local authorities met these proposals or neglected to carry them out. The survey being carried on over a large portion of the country, has naturally collected a large amount of valuable sanitary knowledge, which must make any future dealing with the dreaded enemy so much the easier. While the report shows that the improvement during the past twenty years has been very great, it also points out that very much still remains to be done; that local custom, local apathy, and even local wilful neglect still combine to prevent the carrying out of the measures proper to secure even an ordinary good state of general health. One point strongly emphasised in the report, whether intentionally or not does not appear, is that the Local Government Board seems to have no power to enforce the execution of its recommendations when a local body declines to entertain them. Otherwise the Board seem fairly satisfied with their powers under the various Health Acts, and if as the guardians of the national health they do not consider greater authority necessary, it is to be presumed they are sufficiently armed. There is a very good epitome of the decisions arrived at by the various International Conferences on Cholera. The actual necessity for the investigations which form the groundwork of the report, will be seen from the few statistics following. In Marseilles, from July to October, 1884, inclusive, the cholera death-rate was 4·94 per 1,000 inhabitants, and in Paris during the month of November alone 938 deaths from cholera were registered. In Naples during the eleven weeks ending 9th November, 1884, no less than 7,086 deaths had been registered, equal to 14·4 per 1,000 inhabitants. But it was in the Spanish provinces that cholera really raged at its worst; here there were in 1885 no less than 119,620 victims, giving a death-rate due to cholera alone of 18·2 per 1,000 of the population. Under the guidance of the able officials whose report we have before us, we can hardly conceive that the terrible calamity which so recently befell our neighbours will ever fall so foul of us.

The Cotton Trade of Great Britain. Including a History of the Liverpool Cotton Market, and of the Liverpool Cotton Brokers' Association. By Thomas Ellison. 355 pp., 8vo. and four folding tables. London (Effingham Wilson), 1886.

This long promised work is one we take up with expectations which, before we again lay it down, are fully realised. Notwithstanding the magnitude of the Cotton Trade, we are astonished when we survey our bookshelves at the comparative paucity of the

literature bearing thereon; it is consequently all the more important that the publications should make up in quality what they lack in quantity, and Mr. Ellison's tome will certainly more than hold its own with those of any of his predecessors. The volume is replete with facts and figures and without a single superfluous word, and the deductions made, the explanations given of the innumerable tables which illustrate the work, show distinctly by the clearness with which they are put before the reader, the manipulation of a master hand. The author opens his manual with an historical sketch of the Cotton Industry at the beginning of the eighteenth century; he gives an account of the era of invention, together with an account of the more important consecutive improvements in cotton manufacture; he then indicates the economical results brought about by these inventions, and thus gets on to the Cotton Trade proper, which he traces down to the end of last year. We cannot here, in our limited space, follow Mr. Ellison through all the ups and downs and ramifications of the trade, and will therefore merely refer to some of the more pronounced decisions his investigation and general knowledge of the trade have enabled him to make. In the chapter which he devotes exclusively to the Oldham Cotton Mills, he bears strong witness to the marked economical results obtained by communities who have adopted the co-operative principle in cotton spinning, and points out that the thrift and energy engendered by working on this principle have not only forced other spinners to follow the improved methods brought into use, but that these people have materially helped Great Britain to carry on, during the past ten or fifteen years, its contest with foreign competition (p. 139). From the same evidence it appears that co-operative cotton spinners are better able to weather critical times than private individuals. But in the supplementary chapter, on the other hand, Mr. Ellison shows (p. 303) how the Limited Liability Act of 1862 has been abused, and gives it emphatically as his opinion that the inducements favoured by this Act for the starting of new cotton spinning companies in times of temporary recovery from depression, have been the cause of widespread and increasingly lasting misery. After discussing the questions of competition and protective tariffs, the author continues: "As respects the open markets of the world, Lancashire is practically unassailable by either continental or American competitors," and at the same time he reviews the comparative insignificance of the figures illustrating Continental exports to Great Britain. In the meanwhile there is a growing rival to the British Cotton Trade in India, whose mills have attained their development during the last fifteen years only, and which last year consumed no less than 585,000 bales of cotton of 400 lbs. each. The fact indeed is no longer to be denied, that India is asserting herself not only in her own cotton market, but that she has already commenced to drive England out of the China and Japan markets as well. Mr. Ellison points out the seriousness of this competition. In discussing a remedy, he observes that hitherto in the unsatisfactory pecuniary results brought about by this new antagonist, labour has borne a very inappreciable share, and says (p. 312) that if Lancashire is to hold her own against this new competition,

"the wages of labour per pound of cotton spun and manufactured must, in the immediate future, undergo an important reduction. . . . The only remedy likely to succeed would be, not to produce less at an advanced cost, but to produce more at a reduced cost. To adopt any other course would be tantamount to retiring from business in favour of our competitors." On pp. 325—327 Mr. Ellison calls attention to a discrepancy in the Factory Returns regarding the number of spindles added during the last seven years. In conclusion, we are at a loss to understand how such an eminent publishing firm as that of Mr. Effingham Wilson should have allowed such a book as this to issue from their press without an index.

Die Quellen des Reichthums mit Rücksicht auf Geschäftsstockungen und Krisen im internationalen Geld-, Kapital-, und Warenmarkt, sowie auf die Agrar-, Kolonial-, und Arbeiterfrage. By Max Wirth. 294 pp., 8vo. Cologne, 1886.

The unexpressed spirit which breathes through these pages may well be said to be that which founds sound commerce, in other words the general welfare of mankind, on the principle of free international exchange, and the only instance we can cite in which the author descends from the high standpoint he has taken up, is when he deals with the colonial policy of Germany (pp. 109—112). Here indeed in discussing the losses the Fatherland sustains from the foreign absorption of its children and the counter benefits it would obtain by the establishment of colonies, Herr Wirth allows his patriotism to betray his convictions—we may well forgive him this little backsliding. Otherwise as stated the author is consistent throughout with regard to the principle above laid down, and in all his discussions he takes a wide view of the facts he has to deal with. The most important essay in the book is the one which forms the opening chapter, and which deals with the present depressed state of trade. He does not believe that the appreciation of gold has alone brought about some of the low prices ruling, and accuses economists of blindly attributing the dulness of trade to one particular cause instead of to a series of them. He considers that an examination into facts will lead to the conviction that while general causes are in operation which make themselves felt in the commerce of most countries, there are in every country local influences which through their fortuitous simultaneous coincidence tend to make the depression take up one general character (p. 17). After examining the state of various trades and countries, he names (p. 33) some of the more important influences which have combined to bring about the present profitless condition in commercial affairs, the enumeration of which influences occupies nearly half a page in extent. The evil he considers curable by allowing matters to run their course, but he is at the same time inclined to help by the undertaking of necessary public works, more especially canals, by manufacturers' agreements to limit their output, by the adoption of a gold standard by the United States, Austro-Hungary, Russia, and Holland, by the establishment of international free trade, &c., &c. He speaks in witheringly scornful terms of the

German protectionists. In other chapters he discusses lengthily the export trade of the United States, France, Germany, and Great Britain, the economical system of the latter, of which he expresses himself a great admirer, and calls upon other nations to follow her example (p. 185). He tells us that the German artisan is a thriftless drinker (p. 240), who loves his blue Monday and green Tuesday (p. 246), and who by greater attention to work has in his own hands the bettering of his position. The author informs us that the rich German merchant, unlike his English and French brothers, is wholly uninterested in the literature of his native country. The remarks on the Jews are to the point, and we can, from our own personal experience on the Continent, quite concur in the friendly advice given to the Jewish elders, that they would do well to restrain among their co-religionists somewhat that grasping after ill-gotten gains (p. 273) which we agree in ascribing largely to the effects of past persecution. We do not, however, agree with our author that to prevent the general wastefulness of fuel the State should regulate the systems of house warming to be adopted. Apart from the instructive grouping of the facts and the conclusions drawn therefrom and laid before us, the book is very interesting reading, and as regards questions of the day quite up to date.

IV.—*Additions to the Library.*

Additions to the Library during the Quarter ended 31*st December*, 1886, *arranged alphabetically under the following heads:*—(a) *Foreign Countries;* (b) *India, Colonial and other Possessions;* (c) *United Kingdom and its several Divisions;* (d) *Authors, &c.;* (e) *Societies, &c.* (*British*); (f) *Periodicals, &c.* (*British*).

Donations.	By whom Presented.
(a) Foreign Countries.	
Argentine Republic—	
Datos mensuales del Comercio Exterior. Año 1886, Nos. 47—49	The Argentine Legation, London
Estadística del Comercio y de la Navegacion de la Republica Argentina correspondiente al año 1885. Diagram. 8vo.	The National Statistical Bureau
Buenos Ayres—	
Annuaire Statistique de la Province de—. IV^e^ année, 1884. 8vo.	—
Bulletin mensuel de Démographie de la ville de—. V^e^ année. Nos. 7 et 8. 1886	The Statistical Bureau
Austria and Hungary—	
Nachrichten über Industrie, Handel und Verkehr. Band xxxiii, Heft 1 und 2. Statistik des österreichischen Post- und Telegraphenwesens im Jahre 1885, mit einer statistischen Uebersicht über das Post- und Telegraphenwesen in Europa	The Ministry of Commerce, Vienna

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(a) **Foreign Countries**—*Contd.*	
Austria and Hungary—*Contd.*	
Oesterreichische Statistik—	
Band vi. Statistik der Rechtspflege. Heft 3. Die Ergebnisse der Strafrechtspflege, 1882	The Central Statistical Commission
Band xi. Statistik der Rechtspflege. Heft 1. Die Ergebnisse der Civilrechtspflege, 1883	
Band xii, Heft 3. Statistik der Unterrichtsanstalten, 1883-84. Heft 4. Statistik des Sanitätswesens der im reichsrathe vertretenen königreiche und länder für das Jahr 1883	
Band xiii, Heft 1. Bewegung im Besitz- und Lastenstande der Realitäten im Jahre 1884	
Band xiv. Statistik des Auswärtigen Handels der österreichisch-ungarischen Monarchie im Jahre 1885. Heft 2. Waaren-Einfuhr. Heft 3. Waaren-Ausfuhr. Heft 4. Waaren-Durchfuhr	
Statistisches Jahrbuch des K.K. Ackerbau-Ministeriums für 1885. Drittes Heft. Der Bergwerksbetrieb Oesterreichs im Jahre 1885. Erste Lieferung, die Bergwerks-Production	—
Statistische Monatschrift. XII Jahrgang, Juli-Heft 1886	
Statistische Nachrichten über die Eisenbahnen der österreichisch-ungarischen Monarchie für die Betriebsjahre 1880-84. 5 vols., fol.	The Statistical Department, Ministry of Commerce
Hungary—	
Hivatalos Statisztikai Közlemények—	
Magyarország Iparstatisztikája, 1885-Ben	The Royal Hungarian Statistical Bureau
Magyarország Köz-Es Magánkönyvtárai, 1885-Ben	
Magyarország Aruforgalma Ausztriaval es mas Orszagokkal. (Trade Statistics.) Fuzet 5—8, 1886	
Statistisches Jahrbuch für Ungarn—	
XIII Jahrgang, Heft 12. Ungarns Feuerschäden im Jahre 1883	
XIV Jahrgang, Heft 2. Sanitätswesen. Heft 5. Handelsverkehr im Jahre 1884. Heft 6. Die Creditinstitute im Jahre 1884. Heft 10. Staatshaushalt im Jahre 1884. Heft 11. Kriegsmacht im Jahre 1884	
XV Jahrgang, Heft 3. Landwirtschaft im Jahre 1885	
Ungarns Waarenverkehr mit Österreich und anderen Ländern für das halbjahr 1886, vom monate Jänner bis ende Juni. VI Jahrgang	
Vienna. Finanz- und Steuerverhaltnisse der Stadt Wien in den Verwaltungsjahren 1861-84. 8vo.	—
Ville de Prague. Bulletin hebdomadaire de la—, et des Communes-faubourgs. (Current numbers)	The Statistical Bureau of Prague
Belgium—	
Statistique médicale de l'Armée Belge (Periode de 1880-84). 4to.	—
Exposition Universelle d'Anvers (1885). Liste des Récompenses. 4to.	C. M. Kennedy, Esq., C.B.
Ville de Bruxelles. Bulletin hebdomadaire de Statistique Démographique et Medicale. (Current numbers)	Dr. E. Janssens, Brussels

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(a) **Foreign Countries**—*Contd.*	
China—	
Imperial Maritime Customs—	
I. Statistical Series, No. 2. Customs Gazette, April—June, 1886	Sir R. Hart, K.C.M.G. Peking
II. Special Series, No. 2. Medical Reports for the half year ended 31st March, 1886. Plates	
Journal of the China Branch of the Royal Asiatic Society. New Series, vol. xx, Nos. 1—3, 1885; vol. xxi, Nos. 1 and 2, 1886. Plates	The Society
Denmark—	
Statistique du Danemark. Communications de Statistique. 3e serie. Tome vii. 8vo. 1885.....	The Statistical Bureau of Denmark
Nationalökonomisk Tidsskrift. Ny Række. Heft 6. 1886	The Danish Political Economy Society
Egypt—	
Administration des Postes Égyptiennes. Rapport sur l'Exercice de l'année 1885	The Director-General, Alexandria
Commerce Extérieur de l'Égypte pendant l'année 1885	The Director-General of Customs
Reforme monétaire en Égypte, 1885. Année de l'Hégire 1303. Plate, 4to.	Edgar Vincent, Esq.
Rapport . . . sur les Operations Monétaires faites dans le premier Semestre de l'année 1886. 4to.	
Credit Lyonnais. Bulletin Financier et Commercial, No. 216. 1886.....	Joseph Rabino, Esq.
France—	
Ministère de l'Agriculture. Bulletin. Ve année, No. 5, 1886	The Ministry of Agriculture
Ministère des Finances. Bulletin de Statistique et de Législation comparée. Août—Novembre, 1886	M. A. de Foville
Ministère des Travaux Publics. Bulletin du—. Statistique et Legislation comparée. Octobre, 1886	The Ministry of Public Works
Statistique de la France. Nouvelle série, tome xiii, Statistique Annuelle, année 1883	His Excellency the Minister of Commerce
Ville de Paris. Annuaire Statistique de la—. Année 1882. La. 8vo., diagram	Dr. J. Bertillon, Paris
Ville de Reims. Bulletin Mensuel du Bureau Municipal d'Hygiène. Août—Octobre, 1886.....	The Bureau of Hygiène
L'Economiste Français. (Current weekly numbers.) Paris	The Editor
Gazette Nationale ou Le Moniteur Universel, 1790-1848. Folio. 102 vols.	J. S. Jeans, Esq.
Révue Bibliographique Universelle, Paris :—	
Partie Littéraire. Septembre—Novembre, 1886	The Editor
,, Technique. ,, ,, ,, ...	
Révue Géographique Internationale. XIe année, Nos. 130—132, 1886	,,
Académie Nationale des Sciences, Belles-Lettres et Arts de Bordeaux. Actes de l'— 3e Série, 44e et 45e années, 1882-83. 1er—4e trimestres. 4 parts, plates, 8vo.	The Academy

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(a) **Foreign Countries**—*Contd.*	
France—*Contd.*	
Société de Statistique de Paris—	
Journal de la—. 1886—	
Septembre. Le Problème monétaire, par *F. de Flaix. Variété:* La Population de la Bosnie et de l'Herzégovine	
Octobre. Le mouvement de la Population de la France pendant 1885, par *T. Loua.* Le Problème monétaire, par *F. de Flaix.* La Statistique et sa fonction, par *A. de Johannis. Variétés:* Le mouvement du pauperisme en Angleterre. Le Budget du Japon. La Principauté de Bulgarie. La Population actuelle des Pays-Bas.....	
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Building Societies and Land Companies' Gazette, The	,,	,,
City Quarterly Magazine, The—. Vol. ii, No. 7	,,	,,

* Foreign Periodicals will be found under the various countries in which they are issued.

INDEX TO VOL. XLIX,

YEAR 1886.

PAGE

ACLAND (A. H. D., M.P.). *Working Men's Co-operative Organisations in Great Britain.* [Read before the British Association, at Birmingham, in September, 1886] 755

I.—The possibility of the accumulation of large sums of capital by working men 755
II.—The possibility of the successful utilisation of such capital by working men in industrial enterprise 756
(1). Manufacturing by wholesale societies 757
(2). Manufacturing by retail societies 757-8
(3). The productive societies independent of either the wholesale or the retail societies, but supported mainly by co-operative capital . . 758
III.—The improvement of the position of the worker, or the lessening of the antagonism of employés and employer in consequence of such successful utilisation of capital 758
IV—Summary of results 758
V—Conclusion 759

AGRICULTURE. *Agricultural Returns for the Year* 1885 . . 144

Number of separate returns furnished by occupiers of land and number filled in by the officials, the latter amounting to 5 per cent. of the entire cultivated area in Great Britain 145
General results of the returns for Great Britain show that the area under all kinds of crops, bare fallow, and grass was 32,544,000 acres, being an increase of 79,000 acres on the previous year, due mostly to enclosure and reclamation of land 146
Acreage of different crops, with increase or decrease 147-51
Live stock 152-5
Table showing comparison of the figures relating to acreage under crops and pasture, and to live stock for 1884 and 1885 155-6
Ensilage returns 156-7
Reports on insects injurious to hop plants, corn crops, and fruit crops . 157
Appendix: *Table* of the total area under each kind of crop, bare fallow, and grass, and number of live stock 158-9
—— average proportion per 1,000 acres of cultivated land in each case . 160-61
—— total acreage under each kind of crop, bare fallow and grass; number of live stock in each year 1876-85; and yearly averages, 1867-75 . . 162-3

BADEN-POWELL (G., M.P.). *Remarks* in discussion (Bourne on Tariffs) 307
remarks in discussion (Jeans on Railway Traffic) . . . 726
BANK OF ENGLAND—
weekly returns of the issue and banking departments for 1885 . 238-9
BANKING. London clearing, and the average amount of promissory notes in circulation in England and Wales, Scotland and Ireland, for 1885 237
BATEMAN (A. E.). *Remarks* in discussion (Jeans on Railway Traffic) 730
BEAUCAIRE (M. le Vicomte Rorric de). See *Migration* . . . 450
BELL (Sir F. D.). *Remarks* in discussion (Stout on New Zealand) . 579
BERNARD (W. Leigh). *Remarks* in discussion (Levi on Companies). 269

PAGE

BOOKS. *German Literature of* 1884-85 176

Systematic view of the literary productions of the German publishing trade in 1883-84, extracted from the "Börsenblatt" 176

English Literature in 1885 176

Extract from the "Publishers' Circular," with analytical *table* of books published in 1885, and *table* comparing classification of books published in 1884-85 176-8

Notes on Economical and Statistical Works 672

Basilesco (M. Nicolas). Revue Générale de Droit et Sciences Politiques publiée avec la collaboration de plusieurs savants nationaux et étrangers sous la direction de 672

Annales de l'École Libre des Sciences Politiques, Recueil Trimestriel, publiée avec la collaboration des professeurs et des anciens élèves de l'école . 672-3

"Political Science Quarterly." Edited by the Faculty of Political Science of Columbia College 673-4

Coni (Docteur Emile R.). "Hygiène Infantile. Causes de la Morbidité et de la Mortalité de la première enfance à Buenos-Ayres" 674-5

Biggs (T. Hesketh). "The Grammar of Indian Finance" 675

Daniell (Clarmont). "The Gold Treasure of India. An Inquiry into its Amount, the causes of its Accumulation, and the proper means of using it as Money." "Discarded Silver. A plan for its Use as Money" . . 676

O'Conor (J. E.). "Government of India, Department of Finance and Commerce, Indian Trade and Exchange" 677

British Association for the Advancement of Science. Montreal Meeting, 1884. Canadian Economics, being papers prepared for reading before the Economical Section, with an Introductory Report 677

Hudson (James F.). "The Railways and the Republic" . . . 776

Zorli (Dr. Alberto). "Giornale degli Economisti." Edited by . . 779

Ferguson (A. M. and J.). "The Ceylon Handbook and Directory." Compiled and edited by 779

Fifteenth Annual Report of the Local Government Board, 1885-86. Supplement containing Reports and Papers on Cholera 780

Ellison (Thomas). "The Cotton Trade of Great Britain. Including a History of the Liverpool Cotton Market, and of the Liverpool Cotton Brokers' Association" 780

Wirth (Max). "Die Quellen des Reichthums mit Rücksicht auf Geschäftsstockungen und Krisen im internationalen Geld-, Kapital-, und Warenmarkt, sowie auf die Agrar-, Kolonial-, und Arbeiterfrage" . . 782

see *Library*.

BOOTH (Charles). *Occupations of the People of the United Kingdom,* 1801-81 314-435

I.—General review of occupation censuses of the United Kingdom, noting the peculiarities of each return, and the differences of method adopted . 314

II.—The occupations of the people considered generally, including the numbers, percentages, changes, relative importance, &c., of the leading industries for—

1. England and Wales 319
2. Scotland 336
3. Ireland 338

III.—Suggested improvements in census returns 346

Explanatory remarks (referring to appendices) 349

Appendix: A.—1. *Table* of occupations, England and Wales, 1841-81 . 351

2. —— of occupations, Scotland, 1841-81 372
3. —— of occupations, Ireland, 1841-81 393

B.—1. —— of percentages, England and Wales, 1841-81 . . . 414

2. —— of percentages, Scotland, 1841-81 418
3. —— of percentages, Ireland, 1841-81 422

C.—Comparison of the industrial constitution of England with that of Scotland and Ireland, 1851-81 426

D.—The useless classes, England and Wales, Scotland and Ireland, 1861-81 . 430

E.—Army and navy, merchant seamen, 1861-81 431

F.—*Table* of increase and decrease of population in urban and rural areas, England and Wales, 1871-81 432

G.— —— of influx and exodus of population in same areas, 1871-81 . . 434

Discussion on Mr. Booth's Paper:

Wallace (A. R.)

Comparison of population in urban and rural districts leads to conclusions different from those of Mr. Booth. The official birth-rate returns are misleading 436-7

Ogle (Dr. W.)

Explained some points in connection with the census returns, and combatted Mr. Booth's suggestions as to the adoption of a different mode of classifying occupations 437-8

PAGE

Booth (Charles). *Discussion on his Paper—contd.*

Longstaff (Dr. G. B.)

Thought that a table showing even approximately the number of persons dependent on each industry would be of great value; pointed out that in dealing with the increase of the populations in towns, Mr. Booth had confused absolute and relative quantities; suggested that birth-rates should be calculated on basis of number of women of child-bearing age . 439–40

Humphreys (N. A.)

Considered Dr. Longstaff's suggestion as to calculating birth-rates a good one; the registrar-general for Ireland had issued some valuable returns prepared somewhat in the way suggested by Mr. Booth, and dealing with social status in the community 440

Jeans (J. S.)

In almost every European census but our own the employés were distinguished from the employed; did not see why what was possible in France, Germany, and Belgium could not be done here 441–2

The President (Sir Rawson W. Rawson)

If Mr. Booth's figures could be relied on, they were most valuable . . 442

Booth (Charles), reply:

Deals with observations of Dr. Ogle and Mr. Humphreys as to the way in which the census returns are prepared and published; tables in census ought to be so arranged as to show whether the rural population were increasing or diminishing 443–4

Bourne (S.). *Foreign and Colonial Tariffs as influencing Prices and affecting Trade.* 273–4

Introductory observations 273–4

I.—Progress of trade of United Kingdom. *Table* showing the total imports, re-exports of foreign and colonial goods, and exports of British and Irish produce, with the net difference, and the population of the United Kingdom, for the years 1871-85 275

(*a*) Decline in value of our trading operations 275–6

Table showing the value of all imports and of exports of British and Irish produce, with the subsequent additions or otherwise, distinguishing the amounts due to variations in quantities and in prices . . . 276

(*b.*) Increase in volume of trade is evidenced by the fact that whilst in the fourteen years 1872-85 we have increased the volume of our imports by 108·29 millions, or 31 per cent. on 354·69*l.*, the value in 1872, we have obtained them at a diminished price of 89·15*l.*, or 25 per cent. The exports of our own manufactures have in like manner increased by 65·57*l.*, 26 per cent., on 256·26*l.*, the value in 1872, for which we have received less by 108·80*l.*, or 42 per cent.; the difference between our saving in price on the one and the loss on the other being to our disadvantage . . 277

Table showing the gross importations into United Kingdom from 1872 to 1885 divided into classes, with the increases or decreases in each for quantity and price 279

(*c.*) Decrease in prices is the result which follows from the combined effects of our own tariff and those of other nations taken in conjunction with the continual increase of our population 279–80

Table showing exports of British and Irish produce from 1872 to 1885, with variations for quantity and price 280

II. Influence of foreign tariffs 281–4

(*a.*) On imports into United Kingdom. 281

Table showing the quantities retained for use in this country of certain foreign articles which are exposed to the influence of foreign tariffs . 281

(*b.*) On exports from United Kingdom 281–4

Table showing the quantities of textile manufactures exported from this country during the years 1872-86 282

—— showing the exports of coal and iron from 1872 to 1885. . . 283

III. Progress of other countries 284–7

Table showing the value of goods imported into and exported from principal foreign countries in the years 1872-84 285

—— showing the value of goods exported from and imported into the United Kingdom, to foreign countries, and British possessions in the years 1872-84 286

IV. Influence of tariffs on prices 287–98

The influence of tariff impositions upon prices has to be viewed by us in this country in two distinct aspects. In the one as they directly affect our own trade, and in the other as they operate in restraint of the trade of countries in which they are levied, and so prevent that which we might reasonably expect to carry on with them 287

(*a.*) United States 289

Table showing the quantity of pig iron produced in and imported into the United States of America; the current prices of the same at Philadelphia and Scotland, with the total value computed out, and the difference yielded by the two rates 290

PAGE

BOURNE (S.). *Foreign and Colonial Tariffs—contd.*

Table showing consumption of rails produced in, and imported into the United States from 1867 to 1884 291
—— showing the totals of the several descriptions of iron consumed in the United States in five years, 1880-84 292
(*b.*) Other foreign countries, France, Belgium, Germany 295–6
(*c.*) British possessions: India, Canada, Australasia, New South Wales and Victoria, South Australia 296–8
V. Operations of tariffs in restraint of trade—
(*a.*) Foreign 298–301
(*b.*) British 301–3
VI. Recapitulation—
Our home export trade, whilst until recently increasing in volume, has sadly diminished in the values it has realised, and this diminution has not been compensated for by the reduced prices of the imported raw materials or even of these and the food we have imported put together . . . 303
Other nations are heavily burdening their own people by the expenditure of labour and the employment of capital in the costly production of that which they might cheaply purchase—and that this want of obedience to economic teaching is shared in by our own possessions. The profusion of productive power which has been steadily accumulating in the older and more densely peopled countries, on the one hand, with the boundless natural resources of the newer, and as yet sparsely occupied countries of the west and the south, on the other, have caused the certain results of restrictive policy to be hidden from view—until a general depression has arisen which can only be removed by a returning to, or the adoption of, sounder commercial principles in manufacture and trade 304

Discussion on Mr. Bourne's Paper:

Harris (W. J.)

Cited the case of iron sent to America, and inquired whether the English rail makers did not in fact pay the duty; the result of the protective tariff had been to give America a magnificent iron industry; any discussion on protection involved the question of a duty on food; he believed the present system was false from beginning to end, and that every effort should be put forth to obtain something like reciprocity on the part of the other nations 305–7

Baden-Powell (G., M.P.)

Referred to United States as one of the grandest instances of the entire success of free trade. It was as large as Europe, and had a population of 50 millions, and there was not a single customs duty anywhere over that large continent. Mr. Bourne's figures needed to be carefully dealt with, and in considering them it was important to remember that the home trade largely exceeded the export trade. In dealing with exports and imports from the English point of view, the chief object should be to find out the percentage of manufacturers to raw material and food. Thought that a valuable market was to be found in our own colonies . . 307–8

Glover (John)

We could not feed 4 millions of wage-earners on the system of policy advocated by Mr. Harris, and so we turned to free trade. Now we have to feed 13 millions. Free traders never promised to mend all the ills to which trade was subject, the partial application of the doctrines of free trade to their own affairs had increased their trade fivefold, and when other States, somewhat released from the pressure of waste and military necessities as they would be by-and bye, came to utilise their resources in industrial senses more completely, Englishmen would get their profit out of the further application of these doctrines, but not from any reversal of that which had done so much good to the country 308–9

Edgeome (J.)

Mr. Bourne had proved that hostile tariffs were prejudicial to industries, but he had not shown how home trade laboured under a burden of taxation. He protested against the theory that import duties necessarily raise the price of articles to an importing country 309–11

Hamilton (Rowland)

There could be no doubt that foreign tariffs restricted our export trade, though unless we adopted the same policy their effect was only partial, for as long as we receive imports, exports will find their way out by indirect if not by direct courses in order to pay for them. But no fair estimate of the state of industry could be made without taking into account our home trade. A thorough investigation into that branch of the subject was urgently needed, and he was confident that it would show a very marked increase both in the number and the value of home industries. All trade and industry was a matter of adaptation, and many of our manufacturers benefited largely by freely obtaining materials from abroad which were made up into their own products; they not only got an advantage in cheapness, but also an example which might be profitable to them in many ways for their own work 311

PAGE

BOURNE (S.). *Discussion on his Paper—contd.*
Kennedy (C. M., C.B.)
Dealt with the bearing of the question of international trade in regard to tariffs 311–12
Cornish (T.)
Regretted that no comment had been made on the gold question. Instead of free trade having all the credit for the vast strides that had taken place in the last thirty years, he thought the greatest credit should be given to that over which free trade had no control, namely, the gold mining industry, through which nearly double the quantity of gold had been imported into England than the whole world previously possessed 312
Bourne (S.), reply:
No doubt the policy of both the United States and Canada was distinctly directed towards restraining the importation of goods in order to promote native industry, and the table of prices of iron showed that to the fullest extent. We were only on the fringe of the depression of trade, and unless some unexpected change took place, we should have an infinitely worse state of things than at present 313

remarks in discussion (Giffen on Progress of the Working Classes) 97
remarks in discussion (Ogle on Suicides). 127–8
remarks in discussion (Stout on New Zealand) 578
BRITISH ASSOCIATION. *Address of the President of Section F, "Economic Science and Statistics," at the Fifty-Sixth Meeting, held at Birmingham, September*, 1886 (see *Martin*) . . . 736
paper read by A. H. D. Acland, M.P., on Working Men's Co-operative Organisations in Great Britain 755

CALCULATING Instrument (see Everett) 655
CANADA. *Census of part of the North-West Territories of* [abstracted by G. B. Longstaff, M.A., M.B.] 476

The "Provisional Districts" of Assiniboia, Saskatchewan, and Alberta, and their population, 1881 and 1885, *tables* 476
Birth-places of persons enumerated in these districts, *tables* . . . 476–7
Houses 477
Religions 478
Land occupied and cultivated, *table* 478–9
Progress of the three districts, *table* 479

CENSUS of North-West Territories of Canada. See *Canada* . . 476
CHADWICK (D.). *Remarks* in discussion (Giffen on Progress of Working Classes) 96–7
CLARKE (E.). *Remarks* in discussion (Levi on Companies) . . 266
COHEN (Lionel J., M.P.) *Remarks* in discussion (Jeans on Railway Traffic) 728
COMMERCE. *Financial and Commercial History of* 1885 [from the supplement to the "Statist," 30th January, 1886] . . . 136

The year 1885 has been in every way more unsatisfactory for trade than either of its two predecessors, and there has been a further decrease of 8½ per cent. in the export trade, and a great falling off in the railway traffic returns 136–7
The events of the year which have influenced business have been a dispute with Russia, the partial recovery of business in the United States, and the general election, which has resulted in bringing the Irish question to the front; there have also been events of a minor character . . . 137–9
The state of prices is one of the main signs of the continuance of the depression and the total want of recovery from it; and at the end of the year, as compared with the beginning, there had been hardly any recovery from the exceedingly low prices of commodities established a year before, which were themselves without precedent for many years . . . 139
It is needless to discuss in detail the causes of these low prices, but there must have been a diminution of production and consumption; but it seems to be beyond doubt that the diminution in gold relatively to other articles has something to do with the change in the level of prices . . . 140–41
The state of the discount market and the drain on gold affect prices and trade, and thus contribute towards the depression 141–2
The prospects for 1886 142–3
Index to the Supplement 143–4

PAGE

COMMODITIES, Prices of, and the Precious Metals (see *Sauerbeck*) . 581
COMPANIES, Progressive and Joint Stock (see *Levi*) . . . 241
CO-OPERATIVE ORGANISATIONS and Working Men in Great Britain (see *Acland*) 755
CORN. Gazette average prices, 1885, with summary of 1884 added for comparison 234–5
CORNISH (T.). *Remarks* in discussion (Bourne on Tariffs) . . 312
CRAIGIE (Major). *Remarks* in discussion (Giffen on Progress of the Working Classes) 96
remarks in discussion (Stout on New Zealand) . . . 579
remarks in discussion (Jeans on Railway Traffic) . . . 730

DOCK ACCOMMODATION (see *Flaix*) 763

ECONOMIC SCIENCE and Statistics (see *Martin*) 736
EDGCOME (J.). *Remarks* in discussion (Bourne on Tariffs) . . 309–11
EDGEWORTH (F. Y.). *Progressive Means* 469

Formula for the progress of a series, and for the probable error of this determination 471
The method applied to series consisting of the numbers of vowels in decades of ten pasteboard letters drawn at random from a large and changing mass of such letters 472
To the ratios of male to female for Hertfordshire during a period of twenty-one years 473
To the series of death-rates for all England from 1838 to 1878 . . 474
The value of the method estimated 474
Appendix: Determination of the probable error for the inclination of a line through several approximately given points 475
Verification that the proposed indication of change would not be given when the series is really progressive 475

The Mathematical Method of Statistics 649

Two papers contributed to the "London Philosophical Magazine," the object of one being to remove a certain scruple which in some extreme cases attaches to the mathematical method of statistics, and of the other to facilitate the calculation of the constant referred to as the modulus . 649–54

ELLIOTT (T. H.). *Remarks* in discussion (Levi on Companies) . 265
EMIGRATION. *Emigration and Immigration from and into the United Kingdom in* 1885 [report by R. Giffen on the Statistical Tables] 445

Further decline of emigration. 445
Comparison of emigration and immigration figures for 1884-85 . . 445–6
Decrease of immigrants, *table* 446
Excess of emigrants over immigrants, 1876-85, *table* 447
Low emigration is confirmation of the dependence of the emigration movement on the prosperity or dulness of trade in the countries which receive the emigrants 448
Proportion of the emigrants to population in 1885 was 0·34 per cent., which is only about half that of 1882 and 1883 448–
Destination of emigrants 449
Numbers of cabin and steerage passengers leaving the United Kingdom for places out of Europe in each of the years 1876-85 449

ENGLISH LITERATURE. See *Books*.
ENSILAGE. See *Agriculture* 156
EVERETT (Professor J. D.). *On a Calculating Instrument called a Universal Proportion Table* 655

Description of the instrument, which is an improvement on the circular slide-rule, and is designed to supply a means of rapidly converting a list of numbers into others standing to them in a given arbitrary ratio . . 655–6

EXPORTS, United Kingdom. *Tables* of merchandise, 1880-85 . . 228–31
table of gold and silver, 1883-85 233

PAGE

FINANCIAL AND COMMERCIAL HISTORY of 1885. See *Commerce* . 136–44

FIRES. *The Fires in London during the Year* 1885, *and the Metropolitan Fire Brigade* [from Captain Shaw's Report for 1885] . 170

Number of calls for fires, and of fires during the year, with *table* distinguishing serious from slight in each year 1866-85 170-71
Number of lives lost and endangered, journeys, water used . . . 170-72
Strength of the brigade, electric communication, number of watches . 172-73
Table of number of fires, 1882-85, classified according to occupations . 174
—— of number of fires, classified under causes assigned, and *table* showing numbers on each day of the week, 1876-85 175

FLAIX (E. Fournier de). *The Increase of Shipping and Dock Accommodation in the Principal Maritime Ports* [translated from the "Journal des Economistes," October, 1886] 763

Attention has been diverted from the maritime ways of communication . 763-4
Improvement of foreign trade of various countries and the organisation of ports 775-9
Division of ports into those properly so called, and those on rivers, and examination of their trade 769-74
Maritime competition will become most serious in the Mediterranean . 775
Table of number and tonnage of vessels belonging to the various European countries and the United States 776

The National Wealth of France compared with other Countries [translated from the "Journal de la Société de Statistique de Paris," December, 1885] 186

Comparison of French and English national debts during the past century . 186-7
Methods of estimating the wealth of different countries: (*a*) by having an inventory made on a specific date by competent valuers at each census enumeration; (*b*) by basing an estimate of national wealth on the income tax assessments; and (*c*) by employing the amounts annually subject to legacy and succession duties as the basis of calculation . . . 188-9
Objections to these methods 190
Increase of wealth in France 191-2
Table. Real and personal property, 1826 and 1882 192
Tables. Progress of the increase traced 193-4
—— comparison of accumulations of capital in the United Kingdom and France 195-7
Table. Amount of property in the United States in decades from 1790 to 1880 197-8
The average amount of property per head is in England 224*l.*, in France 236*l.*, and in the United States, 168*l.* 198
Tables. Amount of property in Italy 198-9
—— amount of property in Germany 190
Conclusions 200

FRANCE, National Wealth of (see *Flaix*) 186

GERMAN LITERATURE. See *Books.*

GERMANY, Agricultural Population in (see *Migration*).

GIFFEN (R.). *Further Notes on the Progress of the Working Classes in the last Half Century* 28

Purpose of the essay is to clear up some misconceptions, and to discuss a few subsidiary questions 28-9
I. *The reasons for a fifty years' comparison* 29-32
II. *The rise in money wages* 32-47
The question of the degree of improvement in the condition of the working classes in the last fifty years is not one to which a precise answer can be given 32
The reasons for believing in a very considerable degree of improvement are beyond doubt 33
Explanation of the figures on which the argument as to the rise of wages was based 33-35
Possible deterioration of labour 35
The average money wages of the working classes of the community, looking at them in the mass, and comparing the mass of fifty years ago with the mass of the present time, have increased very nearly 100 per cent . . 36
Proportion of agricultural and non-agricultural labour, and comparison of wages at two periods, *tables* 37-8
Change in the composition of the mass of labourers should not be overlooked 38
Great improvement has taken place in the wages of the lowest class of labour, *table* 38-40
Increase of income-tax payers greater than the increase of population . 40

PAGE

GIFFEN (R.). *Progress of the Working Classes—contd.*

Letter of Mr. Bright's, giving his own experience as a manufacturer . . 41
Statistics collected by Mr. Montgomery, President of the Manchester Statistical Society 41–4
Figures published by Professor Leone Levi 44–5
Improvement in wages abroad, researches of Mr. Jeans, M. Yves Guyot, Mr. Lowthian Bell 45–6
Summary of arguments 46–7
III. *The position fifty years ago* 47–55
Extracts from Carlyle, Disraeli, Thornton, &c., and blue books . . 47–55
IV. *The working class consumption of meat fifty years ago* . . . 55–61
Controversy with Mr. Hutchinson 56–7
Reference to Porter's "Progress of the Nation" 58–9
Consumption of "meat" by labourers 59–61
V. *Aggregate income and classification fifty years ago and now* . . 61–9
Mr. Dudley Baxter's estimate of the national income in 1867 . . 62
Professor Leone Levi's estimate 62
Result of comparison of these calculations, as determining income of the United Kingdom in 1883, *table* 63–4
Income of the United Kingdom in 1835-40, *table* 65
Comparison of the incomes at the two periods 65–6
Increase of the professional and commercial classes, 1851-81 . . . 67
Comparison of the increase of the income of the last fifty years which belongs to capital and to labour, *table* 68
VI. *Summary and conclusion* 69–63
Appendix A: Rates of wages paid to unskilled labour (non-agricultural) fifty years ago and at the present time, *table* 74–7
—— B: Comparison of agricultural wages fifty years ago and at the date of the recent Royal Commission on Agricultural Depression, *table* . . 77
—— C: (1.) Statements as to wages of workmen and workwomen in France. *Tables* 78–9
—— (2.) Statements as to wages of workmen in Germany, *tables* . . 79–80
—— D: List of parliamentary reports, &c., dealing with the condition of the working classes fifty years ago 80
—— E: Porter's *table* as to subsistence of agricultural labourers in 1836 . 81
—— F: Detailed answers from particular counties, from which previous table is compiled 82–9
—— G: Statement showing the increase of the different groups of the census in England and Wales, 1851-81, with explanatory note . . 90–91

Discussion on Mr. Giffen's Paper:

Harris (W. J.)

Drew attention to certain compensating facts which ought to have been taken account of in the paper, and alleged that present wages were not a fair representation of the real earnings of the people 92

Jeans (J. S.)

The effect of the reduction of hours of labour on rates of wages is an important element in this discussion. In England hours of labour have been reduced whilst wages have increased. This is not so in most other European countries. Thought Mr. Giffen might have made more of the variation from period to period of the amount of taxation . . . 92–3

Levi (Professor Leone)

Thought that the working classes were much better off than they were fifty years ago; they earned more, they worked less, and they consumed more. Their expenditure now included items which were not required before, and taken as a whole, they were much more elevated in character, intellectually, socially, and politically, than ever they were before 93–4

Jones (B.)

Differed from Mr. Giffen's conclusions, and doubted if the figures stated could be substantiated, though he agreed that there had been a slight improvement in the condition of the working classes . . . 94–6

Craigie (Major)

Thought that the growth of the entire income of the country should be considered in connection with this question, and deal specially with agricultural incomes 96

Chadwick (D.)

Working classes had suffered by heavy increase in house rents . . 96–7

Bourne (S.)

The paper would have been more useful if it had shown the progressive movement through the fifty years. What was wanted was not comparisons as to specific rates of wages, so much as the general result of the proportion which actually existed between the wages and their purchasing power, and between the whole expenditure and the actual earnings . 97

PAGE

GIFFEN (R.). *Discussion on his Paper—contd.*
Hamilton (R.)
Demurred to the assumption that the reduction of the hours of labour was also a reduction of the productive power of the labourer . . . 97
Miller (W.)
Suggested adjournment of the discussion 97
Giffen (R.), reply:
Demurred to the suggestion for adjournment; thought the suggestion for particulars as to intermediate periods valuable, but he had done the best he could under the circumstances, and would congratulate any gentleman who would do the rest; the information as to wages in "Miscellaneous Statistics" ought to be improved, and fuller and more particular accounts of wages should be published; referred at length to criticisms of Mr. Jones, and as regards the increase in house rent, thought that, taking the country all over, the chief cause of the increase was the improvement of the houses and the accommodation 98–100
remarks in discussion (Ogle on Suicides) 130–31
GLOVER (J.). *Remarks* in discussion (Bourne on Tariffs) . . 308
GONNER (E. C.). *Remarks* in discussion (Jeans on Railway Traffic). 729

HALL (Sir J.). *Remarks* in discussion (Stout on New Zealand) . 574
HAMILTON (R.). *Remarks* in discussion (Giffen on Progress of Working Classes) 97
remarks in discussion (Levi on Companies) 270
remarks in discussion (Bourne on Tariffs) 311
HARRIS (W. J.). *Remarks* in discussion (Giffen on Progress of Working Classes) 92
remarks in discussion (Bourne on Tariffs) 305–7
HENDRIKS (F.). *Remarks* in discussion (Stout on New Zealand) . 578
HUMPHREYS (N. A.). *Remarks* in discussion (Booth on Occupations of the People). 440

IMMIGRATION into United Kingdom. See *Emigration* . . . 445
IMPORTS, United Kingdom. *Tables* of merchandise, 1880-85 . . 230
table of gold and silver 233
INCOME, aggregate, fifty years ago and now 61–9
INDEX to the Catalogue of the Library. Particulars as to . . 480
INSECTS injurious to Crops. See *Agriculture* 157
ITALY, Statistical Review of (see *Loua*) 662

JEANS (J. S.). *On the Cost and the Conditions of Working Railway Traffic in different Countries* 693
Importance of the subject to the general public, to the investing public, to the economist and statistician, and to industrial interests . . . 693
In the twenty-one countries tabulated in *Table* A there have been constructed about 246,000 miles of railway, at a total cost of 4,323¾ millions sterling, being an average of about 17,230*l.* per mile. This average is only about a third of that found for England and Wales. If United Kingdom is eliminated, the total mileage constructed comes out as 227,000 miles, and the expenditure falls to 3,537 millions sterling, being an average of about 15,200*l.* per mile, or considerably less than one-third of the average cost incurred in England and Wales, and about one-half the cost incurred in Scotland 694
Table showing the average gross and net earnings and working expenses per mile of railway open in different countries (1883) 695
Consideration of the elements that compose the total cost of railway working under different circumstances 696-8
There are two directions whence highly important economic reforms may be expected to take place within no distant period. The first is the adoption of fuller train-loads, alike of passengers and goods traffic; the second is the natural increment of such traffic, and the consequent receipt of higher gross earnings relatively to the working expenditure; *tables* of train-miles and receipts 699–703
Table showing the tonnage of goods traffic transported in different countries, the total gross receipts therefrom, and the average receipts per ton . 704
Railway receipts per ton carried, *table* 705–6

PAGE

JEANS (J. S.). *Cost, &c., of Working Railway Traffic—contd.*

Average cost per mile of railway open in different countries in 1874 and 1884, with amount of increase or decrease in the latter year, *table* . 706
The greater cost of British railways is capable of explanation. The traffic of other countries has been developed concurrently with that of our own, and in some cases to a still greater extent, without having involved the same enormous increase of capital outlay on already existing lines. *Table* showing the volumes of goods and passenger traffic carried on the railways of different countries in 1874 and 1884 707
Rates and fares considered 708–15
Observations on Board of Trade statistics 715–16
Appendix A: Statement showing the mileage of railways open in different countries at the end of 1883, the total cost of construction, and the average cost per mile 717
—— B: Statement showing the composition of the total average expenditure per train-mile on the principal railways of the United Kingdom . . 717
—— C: Statement showing the average cost per mile open of railways in the principal European countries, &c., 1872-85 718
—— D: Statement showing the numbers of passengers carried on the railways of different countries, 1874-84 (1 = 1,000). 718
—— E: Statement showing the number of tons of goods traffic carried in different countries, 1874-84 (1 = 1,000) 719
—— F: Statement showing the total volume of general merchandise traffic carried on the railways of England and Wales, the total receipts therefrom, and the average receipts per ton 719
—— G: Statement showing the number of train-miles run by goods and mineral trains in the United Kingdom, the receipts from goods traffic, and the average receipts per train-mile 719
—— H: Statement showing the statistical position and financial results of American railways 720

Discussion on Mr. Jeans's Paper:

Martin (R. Biddulph, Chairman)

The interest attaching to all these statistics was that they might lead to an improvement in the condition of railway travelling. The item of cost per mile of English railways was one of great importance and difficulty. The experience gained in England was not lost when other countries went to work. He contended that no railway ought to earn a shilling where it could earn two sixpences, because every person who could be induced to travel as a passenger, and every pound of merchandise carried, was conducive to the carriage of another passenger or another pound of merchandise, and the more they could get passengers to travel, the more they would fill up their trains 721-2

Mundella (A. J., M.P.)

Could not say that he entirely agreed with the chairman, who seemed to think that the less the Board of Trade interfered with railways the better, and that public interests would be best cared for if they were left to the private competition of the railways themselves. If the past history of railways would maintain that view of the question he had nothing more to say, but he did not think that was the general opinion. An item in the cost of railways was the great cost of land, and the very foolish and blind oppositions that were made to the introduction of railways by land owners; and another very deplorable item was the tremendous cost of parliamentary expenses. These things, taken together, made it very difficult for the railway companies, having such a large capital account, to grant all those facilities and reductions of rates which were given in some other countries. Hoped that something might be done to facilitate a better understanding betwixt railways and the public, and that when they came to legislate upon the question there would be an absence of bad feeling, and a readiness on both sides to meet the just and reasonable demands which were being made by the commercial and agricultural communities . . . 723–4

Price (W. P.)

The initial cost of railways was due no doubt to the very much larger sum paid for land, and worse than that to the enormous amounts paid for compensation and to get rid of parliamentary oppositions; that was the most odious of all the charges with which railway companies had been burdened. They had only themselves to thank for it. The same thing applied to the cost of parliamentary proceedings, for more simple processes might have been devised by which companies should have been authorised to make railways. One of the most unsatisfactory parts of the business was the uncertainty of the decisions of parliamentary committees on the merits of different applications to them 725–6

Baden-Powell (G., M.P.)

Said the paper was of extreme public value, and well expressed the problem they had to consider, viz., on the one hand to promote if possible inexpensive transportation facilities, and on the other hand to carry out a profitable commercial undertaking 726

PAGE

JEANS (J. S.). *Discussion on his Paper—contd.*

Tomlinson (Mr.)

Considered Mr. Jeans's statistics not at all satisfactory. There were many distinctions between the cost of railways in England and America, such as duplicate lines, station accommodation, bridges, &c., that rendered a comparison of the two impossible. It will require a great deal more information before we can admit that, all things taken into consideration, we in England are behind any of the foreign countries in railway construction, maintenance, or working 727–8

Cohen (Lionel L., M.P.)

Drew attention to the cheap lines of railway, working at low rates of speed, in use in Germany, Italy, Switzerland, and Belgium; he did not think that as a general rule the State should interfere with the working of the railways, being satisfied that the principle of leaving the trading class alone to do their own business in their own way was the best; but where the companies obtained a monopoly, it was necessary that the State should charge that monopoly with certain conditions for the protection of the public 728–9

Vanderbyl (Philip)

Thought a good deal might be learned from the continental system of working railways 729

Gonner (E. C.)

The paper failed to afford sufficient data for the conclusions arrived at in such degree as the increase of speed as well as the greater frequency of trains affected the working expenses; the expense per mile could justify no opinion as to comparative cost unless some account were taken of the results which followed, and the circumstances which caused that expense . 729

Craigie (Major)

Regarded the question of the cost of goods traffic as a far more pressing and important one than the carriage of passengers 730

Rawson (Sir R. W.)

The system upon which railways had been constructed in England had no doubt had a very important effect in drawing the population into a small number of centres through which their railway system passed, and believed that if small cheap lines were thrown out as feeders right and left, they would enable manufacturing establishments to be fixed in small places and so to distribute the population, and to check what was certainly one of the great evils not only of this but of other countries, drawing the people from the agricultural districts into the towns . . . 730

Bateman (A. E.)

Should not have risen had the author not passed some very severe strictures upon the statistics of the Board of Trade, as given in the foreign abstract. That Board not only got the best information from railway statistics published by foreign governments, but they every year sent round to the various bureaux abroad a copy of the foreign statistical abstract, calling attention to blanks, and asking if they could be filled up. They hoped in a year or two to be able to get something like comparative statistics from all countries. 730

Martin (J. B.)

Called attention to the comparison between American and English railways at various periods. It must be borne in mind that from 1861 to 1865 the dollar fell, in gold value, from par to 66 cents, and that was an element that required to be discounted in the figures laid before them. The effect of making this allowance would be seriously to alter the figures given in some of the tables 731

Jeans (J. S.), reply:

As to the criticism that the greater average cost of English lines was due to a variety of circumstances which the paper had not dealt with, he said that neither he nor anyone else had the figures that would show how much of the 50,000*l.* a mile expended on the English railways went in actual construction and equipment, and how much in locomotive, waggon, and steel works, the purchase of canals, the construction of harbours, docks, &c. It was a pity that the proportions of running and shunting mileage were not distinguished in the railway accounts 731

Clarke (Hyde)

Having been precluded from speaking, submits a statement of his views, to which Mr. Jeans replies 732–5

remarks in discussion (Giffen on Progress of the Working Classes) 92–3

remarks in discussion (Booth on Occupations of the People) . 441

PAGE

JOINT STOCK COMPANIES (see *Levi*) 241
JONES (B.). *Remarks* in discussion (Giffen on Progress of the Working Classes) 94–6

KENNEDY (C. M., C.B.). *Remarks* in discussion (Bourne on Tariffs) 311
KERRY-NICHOLLS (J. H.). *Remarks* in discussion (Stout on New Zealand) 577

LABOUR, Wages of Agricultural and Non-Agricultural . . . 37–8
LAWSON (Dr. R.). *Remarks* in discussion (Ogle on Suicides) . . 131–2
LEVI (Professor Leone). *The Progress of Joint Stock Companies with Limited and Unlimited Liability in the United Kingdom, during the Fifteen Years* 1869-84. (In continuation of a paper read before the Society in January, 1870) 241

Extent and use of public companies, showing that the battle of limited liability has ended by the full admission of the principle for all kinds of business 241–2
Recent legislation on joint stock companies 242–3
British and foreign laws on companies compared, with result that the laws of the United Kingdom are seen to provide less security against the perpetuation of fraud in the formation of companies than the laws of France, Italy, or Germany 243–4
Number and capital of joint stock companies registered, showing that during 1862-84, 23,140 companies had been registered, with nominal capital of 2,710 millions, but in 1885 there were in existence only 9,320 companies, with a paid up capital of 494,910,000*l.*, the proportion left being only 40·27 per cent. of the total number of companies, with capital paid up amounting only to 18·26 per cent. of the nominal sum proposed . . 244–5
Table showing quinquennial average number and capital of joint stock companies, 1863-84 246
Relation of joint stock companies to trade 246–7
Classification of joint stock companies 247
Public and private companies 248
Co-operative companies 248–9
Dividends of joint stock companies paid during 1872-85, *table* . . 249
Dividends paid in 1880 and 1884 by 216 companies, with capital of 1,119 millions, *table* 250
Table showing annual average dividends and total amount of profits in these companies 251
Average profits on a paid-up capital of 1,299 millions are 5·17 per cent., *table* 252
Centralisation of capital and rate of interest by means of banking companies 252–3
Incomes of public companies, as ascertained from the inland revenue commissioners' reports, *table* 253–5
Reforms in the law on joint stock companies 255–6
Relation of companies to the depression of trade 256–7
Appendix A: *Table.* Numbers and nominal capital of joint stock companies registered, 1863-84 258
B. *Table.* Number of banking and other companies, with amount paid up in 1883 259
C. French and American law on the subject 260–61
D. *Table.* Gross amount of property assessed to income tax on public companies 263

Discussion on Professor Leone Levi's Paper:

Purcell (J. S., registrar of joint stock companies)

Under an Act of 1880, 5,650 defunct companies had been struck off the register. He thought that the special form of company favoured by Professor Levi would not answer in this country 264–5

Elliott (T. H.)

Thought that the limited liability Acts had not been altogether favourable to the development of commerce, and that they had been the means of unduly stimulating over-production. This was specially the case in the shipping trade and cotton spinning industry. Suggested a tax of 2*s.* 6*d.* per cent. on paid-up capital of companies 265–6

Clarke (E.)

Companies should be compelled to furnish fuller particulars of their transactions, and the Board of Trade should have more extended powers than it at present possesses. Suggested several practical points for legislation . 266–7

Paul (H. Moncreiff)

Objected to the French system of unlimited liability for directors' limited undertakings, and stated the result of his analysis of the company register 268–9

PAGE

LEVI (Professor Leone). *Discussion on his Paper—contd.*

Bernard (W. Leigh)

Pointed out that most of the questions raised as to amending the law were fully considered by a parliamentary committee in 1867. In America any number of persons from two upwards could associate, and be limited in liability to a fixed amount 269–70

Hamilton (R.)

Unlimited companies had been unduly blamed as leading to excessive competition. Joint stock companies might be divided into two classes, *e.g.*, banking and assurance companies and the like on the one hand, and mines and those exposed to special risks on the other. Approved of all legislation directed to securing due registration and full investigation into affairs of companies 270

Coles (John)

Inquired as to details in the paper 271

The President (Sir Rawson W. Rawson)

The International Statistical Congress found difficulty in collating information on this subject, and reported certain amendments in the practice which they considered necessary to be adopted 271

Levi (Professor Leone), reply:

The question of imposing unlimited liability on directors was simply one of law, morals, and practical business. The advantages conferred by limited liability companies must be put against the disadvantages that had arisen from them. It would be a great advantage if all the Acts in force relating to joint stock companies were consolidated and brought into shape. . 271–2

remarks in discussion (Giffen on Progress of the Working Classes) 93–4

LIBRARY of the Society, additions to, in 1886 . . . . . 201–16, 494–512, 678–92, 783–805

Notes on some Recent Additions to the 482

"Vital Statistics" 482–3
"Letters and Journal of W. Stanley Jevons". 483–5
"The Distribution of Products, and the Mechanism and the Metaphysics of Exchange." (Atkinson) 485–7
"The Financial History of the United States from 1774 to 1885." (Bolles) . 487–90
"Annual Statistical Report of the Secretary to the Members of the British Iron Trade Association, on the Home and Foreign Iron and Steel Industries in 1885." (Jeans) 490
"The Manufacture, Consumption, and Production of Iron, Steel, and Coal, in the Dominion of Canada." (Bartlett) 490–91
"The Victorian Year-Book, 1884-85." (Hayter) 491–2
"Prices and Wages in India" (O'Conor) 493
"Scribners' Statistical Atlas of the United States, showing by Graphic Methods their Present Condition, and their Political, Social, and Industrial Development." (Hewes and Gannett) 493

LLOYD'S statistics of marine casualties. See *Wrecks* 657
LONGSTAFF (Dr. G. B.). *Remarks* in discussion (Ogle on Suicides). 128–9
remarks in discussion (Booth on Occupations of the People) . 439
remarks in discussion (Stout on New Zealand) 578
LONGSTAFF (Dr. G. B.). *The present Population of the United Kingdom, 1st April, 1886* 760

Five years since the last census, and five years to the next. Method of estimating a population 760
Table I. United Kingdom. Population enumerated 3rd April, 1881, and estimated for 3rd April, 1886, on the assumption of the same rate of increase being maintained 760
—— II. United Kingdom. Births, deaths, and natural increase in the five years, 1st April, 1881, to 31st March, 1886. (*a*) Estimated on the assumption of the mean annual birth-rates and death-rates remaining the same as in the decennium 1871-80, and taking the population to be the arithmetic mean between that of the census of 1881 and that given for 1886 in *Table* I; and (*b*) as actually registered 761
—— III. Excess or defect of registered natural increase in the five years, 1st April, 1881, to 31st March, 1886, compared with the estimated numbers 761
—— IV. Emigration and immigration recorded in the United Kingdom in the five years 1881-85, compared with half the amount for the ten years 1871-80 762

PAGE

LONGSTAFF (Dr. G. B.) *Population of United Kingdom—contd.*

Table V. Emigrants of English, Scotch, and Irish origin in the five years 1881-86, compared with half the number of like emigrants in the ten years 1871-80 763
—— VI. Excess of English, Scotch, and Irish emigrants in last quinquennium; also excess or defect of natural increase over estimate for like period . 763
It is a matter for regret that out of 1,292,309 emigrants of British and Irish origin who left these shores during the past five years, no less than 812,547, or 65 per cent., preferred the United States to any of our colonies. Whereas 57 per cent. of the English and 59 per cent. of the Scotch emigrants went to the United States, as many as 82 per cent. of the Irish chose that country for their new home 763

LOUA (M. Toussaint). *Statistical Review of the Present Position of Italy.* [Translated from the "Journal de la Société de Statistique de Paris," February, 1886] 662

These particulars relating to the moral and economic condition of Italy have been taken from the "Annuario Statistico Italiano," and supplemented by figures relating to later years from official statistical returns . . 662
Area, population, number of communes, and emigration, *tables* . . 662–3
Public and private instruction, *tables* 664–5
Technical instruction and fine arts 665
Newspaper press 666
Bankruptcies 666
Crime 667
Army and navy 667–8
Finances of the country 668
Mineral productions and land under cultivation, *tables* . . . 669
Live stock, *table* 670
Monetary statistics and ways of communication, post office and telegraphs, *table* 671
Mercantile marine, *table* 671
Commerce, *table* 672

MARTIN (J. B.) *Economic Science and Statistics. Address delivered before Section F of the British Association, at Birmingham, September,* 1886 736

Reference made to Professor Ingram's address at Dublin, and Professor Bonamy Price's address at Cheltenham in 1878 736–7
We may claim a place among sciences for the objects of the Section, namely, to investigate the laws which govern the individual and social life of man, to examine causes which seem to be accountable for exceptions, real or apparent, to such laws 738
It is no reproach to economic science to have taken up wider ground, to have recognised as matters within its proper scope considerations that the older economists, concerning themselves with wealth in its narrow sense as the *summum bonum*, and with the desire for its acquisition as the one mainspring of human action, would have rejected as sentimental or philanthropic 739
Observation need not be abandoned because results equal to those of chemistry cannot be obtained 741
Point where statistical method comes in as the ally of economic speculation . 742
Methods and value of statistics 743–5
The responsibilities of the statistician, and his inquiries into the facts of social life 745–9
Errors that should be avoided in connection with investigations on vital statistics 749–50
Remarks on currency and prices 751–4

remarks in discussion (Jeans on Railway Traffic) . . . 731
MARTIN (R. B.). *Remarks* in discussion (Jeans on Railway Traffic). 721
MEAT, consumption of, by the working classes fifty years ago . . 55–61
MEDICAL PROFESSION, Mortality in, by Dr. William Ogle. See *Mortality* 164
METHOD, Mathematical, of Statistics (see *Edgeworth*) . . . 649
MIGRATION. *Migration from the Rural Districts and the Condition of the Agricultural Population in Germany.* By M. le Vicomte Rorric de Beaucaire. [Translated from the "Bulletin du Ministère de l'Agriculture de France," February, 1886] 450

Object of the paper is not only to show to what extent migration from rural districts to towns has taken place in Germany, and to study the causes that have led to it, and the consequences which have resulted from this movement of the population, but also to inquire into the measures that are adopted or proposed to be adopted in this country to check it . . 450

PAGE

MIGRATION— *contd.*

Proportion of urban and rural population to total population, *tables* . . 451
To account for the constant and steady flow of migration from the rural to the urban districts many causes are assigned, among the principal being the enormous development of industrial production; the conditions of material ease and well-being which has considerably improved; the increase in public wealth; the attempt at centralisation, which has resulted in establishing the city of Berlin as the new capital of Europe; the increase of the standing army, and the impetus given in recent years to every description of German industry 452
Agricultural wages in different districts 453–5
Points of similarity in the movement of migration from rural to urban districts in France and Germany 456–7
Reasons which have led to the present superiority of the German over the French race 458–60
Measures for the retention of the peasant in the rural districts and the improvement of the agricultural industries 460–63
Institutions to aid agriculturists by loans and otherwise, and to relieve the poor 463–5
Societies for mutual help and the discussion of agricultural questions . 466–8

MILLAR (W. H.). *Remarks* in discussion (Ogle on Suicides) . . 132–3

MILLER (W.). *Remarks* in discussion (Giffen on Progress of the Working Classes) 97

MILLS (A.). *Remarks* in discussion (Stout on New Zealand) . . 575

MONEY. *The Production of the Precious Metals and the Monetary Circulation in Various Countries.* [Translated from the "Bulletin de Statistique et de Legislation Comparée," September, 1885] . 178

Figures extracted from a work by Dr. Soetbeer, bringing the information relating to the production of gold and silver down to the latest date, *table* . 178
Prices of silver in London, 1871-85, *table* 179
Industrial consumption of gold and silver, *table* 179
Consumption of gold and silver in the United States, *table* . . . 180
Exports of gold and silver to the East, *table* 180
Monetary circulation in the principal countries, *tables* . . . 181–6

MORTALITY. *Mortality in the Medical Profession*, by Dr. William Ogle [read before the Royal Medical and Chirurgical Society] . 164

Death-rate among medical men at different ages 164
The rate in the medical profession is not only higher than in any of the other learned professions, but compares unfavourably with the rates in most trades and industries, and is "only exceeded by the rates in certain trades and occupations that are notoriously unhealthy" 165
Inquiry as to the diseases to which the excessive mortality in the profession is due 165–8
Discussion on the paper 168–70

MUNDELLA (A. J., M.P.). *Remarks* in discussion (Jeans on Railway Traffic) 723

NEWSPAPER and periodical press, statistics of the (from May's "British and Irish Press Guide for 1886") 480
NEW ZEALAND, notes on the progress of (see *Stout*) . . . 539

OCCUPATIONS of the People of the United Kingdom (see *Booth*) . 314
OGLE (Dr. William). *Suicides in England and Wales in Relation to Age, Sex, Season, and Occupation* 101

I. *Amount of Suicide* 101–17
From 1858 to 1883 there were 42,630 deaths registered as caused by suicide, and this number was far below the true figure 101
Suicide-rates in relation to age, *table* 102–3
Ditto sex, *tables* 103–6
Ditto occupation, *tables* 106–16
Amount of suicide in relation to season, with *table* showing distribution of suicides in London by months of equal length 116–7
II. *Method of suicide* 118–23
This is rather a subject of curiosity than of any higher interest . . 118
Table showing suicides from different methods 118
Method of suicide in relation to sex 118
Table: substances employed in suicides by poison 119

PAGE

Ogle (Dr. William). *Suicides in England and Wales—contd.*

Method of suicide in relation to age 120
Table: methods employed by suicides at successive age-periods . . 121
Method of suicide in relation to occupation, *table* 121–3
Method of suicide in relation to season 123
Appendix: *table*, suicide mortality, at successive age-periods, of males engaged in different occupations, 1878-83 124–6

Discussion on Dr. Ogle's Paper:

Bourne (S.)

The paper did not deal with the indulgence of lustful desires as one incentive to suicide; in his experience he had found that those who violated the laws of morality were more liable to take their own lives than those who lived virtuously 127–8

Longstaff (Dr. G. B.)

Regretted that Dr. Ogle had not dealt with geographical distribution of suicide; thought that education itself had a distinct tendency to unhinge the mind, and in proportion as a man studied he was more and more likely to yield to the impulse of self-destruction 128–9

Paul (H. Moncreiff)

Commented on the methods employed in the paper 129–30

Giffen (R.)

Thought that it was important when a paper like this came before them, which supplied a large amount of original information, something entirely new to the Society, and to a large extent a real contribution to the scientific knowledge of the subject, that this fact should be distinctly recognised; it would have been interesting if Dr. Ogle had given some idea of the total number of suicides in each year; suggested whether there might not be some connection between the method of suicide and the increase of suicide in the summer months 130–31

Lawson (Dr. R.)

Criticised Dr. Ogle's method of dealing with age-distribution, and thought that the results in certain cases could not be received as of much weight . 131–2

Millar (W. H.)

Suggested that periods of five years would be better than ten, and referred specially to statistics of suicide in the army as confirming Dr. Ogle's figures 123–3

Tuke (Dr. Harrington)

A statement of the number of suicides that were connected with diseases of the brain would doubtless show a different result as to the educated classes, for insanity and suicide went together 133

Ogle (Dr. W.), reply:

No table showing whether suicides were married or single could be given, as the returns took no account of the conjugal condition of males. He had not prepared a table showing geographical distribution of suicides on account of the smallness of county areas, and because such distribution was not due to geographical conditions 134–5

The President (Sir Rawson W. Rawson)

Proposed the thanks of the Society to Dr. Ogle, and hoped that in connection with the new International Statistical Society it would lead to the investigation of the question on the continent 135

remarks in discussion (Booth on Occupations of the People) . 437
see *Mortality* 164

Paul (H. Moncreiff). *Remarks* in discussion (Ogle on Suicides) . 129–30
remarks in discussion (Levi on Companies) 268–9
remarks in discussion (Stout on New Zealand) 576
Population. Migration of agricultural, in Germany. See *Migration* 450
of the United Kingdom in 1886 (see *Longstaff*) . . . 760
Precious Metals, prices of commodities, and the, (see *Sauerbeck*) . 581
Price (W. P.). *Remarks* in discussion (Jeans on Railway Traffic) . 725
Prices of Commodities and the Precious Metals (see *Sauerbeck*) . 581
Progressive Means (see *Edgeworth*) 471
Purcell (J. S.). *Remarks* in discussion (Levi on Companies). . 264

PAGE

Railway traffic, cost of working (see *Jeans*) 693
Rawson (Sir Rawson W.). *Remarks* in discussion (Levi on Companies) 271
remarks in discussion (Booth on Occupations of the People) . 442
remarks in discussion (Stout on New Zealand) 571
remarks in discussion (Jeans on Railway Traffic) . . . 730
Registration of the United Kingdom:
England and Wales:
marriages, births, and deaths 217–21
comparative *table* of consols, provisions, coal, and pauperism, 1883-85 219
general meteorological *table* for 1885, by James Glaisher . . 222–3
Scotland:
births, deaths, and marriages, with bastardy *table* . . . 224–7
Great Britain and Ireland:
summary of marriages, births, and deaths 227
Revenue of the United Kingdom. Net produce in quarters and years, 1882-85 236

Sauerbeck (Augustus). *Prices of Commodities and the Precious Metals* 581

I. Precious metals and currencies. Gold always been the money of nations. Bi-metallic and other standards; adoption of gold currency has caused depreciation of silver 581–3
Production of gold and silver during the last one hundred years, *table* . 583
Falling off in the production of gold, and consumption of gold in coinage, arts, and manufactures 583–8
The economising of money 588–90
II. The course of prices 590–5
Tables of average of index numbers 592–3
Table, average prices, 1828-85 596–7
Tables, index numbers of prices of animal produce, 1867-77 . . . 598–9
Influences to have affected trade 600–601
III. The production of commodities, increase of production has been occasioned by the following three causes: 1. The high prices in the years 1872-74, and then again during the American "boom" from 1879 to 1880; 2. The diminution of the cost of production and conveyance; 3. The opening of new sources of supply 601
Imports into United Kingdom from America and Australia, *table* . . 603
Extent of the increase of production, dealt with under corn, rice, meat, sugar, coffee, tea, pig iron, coals, copper, cotton, wool, silk and jute, *tables* . 604–14
Special remarks as to production and imports, with *table* . . . 615–19
IV. Recapitulation of the causes of the fall, with *table* of income . . 618–24
V. The present state of the silver question. The reasons for the fall in the value of silver may be concentrated under two headings: the arbitrary (or political), and the natural causes. The arbitrary causes comprise the alteration in the currencies of Germany, Scandinavia, Holland, &c., and the stoppage of silver coinage of the Latin Union. The natural causes are the increase in production from the old and from the new mines, partly worked for the large proportion of gold contained in the silver ore, and the tendency in the more valuable metal to dislodge the less valuable, *table* . 624–9
VI. The future of prices 629–31
Appendix: A. Construction of the tables 632–5
B. Average prices of commodities, *table* 636–41
C. Index numbers or percentages of prices, *table* 642–7
D. Summary of index numbers, *table* 648
Diagram: Course of average prices of groups of articles
—— course of average prices of general commodities in England

Shipping and dock accommodation (see *Flaix*) 763
Shipping of the United Kingdom, 1883-85 232
Statistical Society:
report of Council, June, 1886 513
abstract of receipts and payments for 1885, with auditors' report . 529
comparative financial statement of 1885 with that of previous years 514–15
proceedings at ordinary meetings, with titles of papers read . 516–18
proceedings of the fifty-second anniversary meeting . . . 532–8
list of deceased Fellows during 1885-86 521
see also *Library*.

PAGE

STATISTICS, mathematical methods of (see *Edgeworth*) . . . 649

STOUT (Sir Robert). *Notes on the Progress of New Zealand for Twenty Years*, 1864-84 539

Introductory remarks. 539–40
I. Population, including the location, the education, the birthplaces, the religions, the crime, and the morals of the people. Under the education of the people are dealt with those things that go to make up the social and intellectual well-being of the people—libraries, museums, &c. . . . 540–52
Percentage of each nationality to totals of population, 1864 and 1881, *table* . 541
Religions, 1864 and 1881, *table* 542
Religions and marriages, 1864-84, *table* 543
Birth, death, and marriage-rates, 1864-84, *table* 543
Death-rate, 1877-84, *table* 544
Occupations of the people, *table* 544
Education, *tables* 544–8
Morals and crime, *tables* 548–52
II. Trade and shipping development, and vessels entered inwards and outwards, *tables* 552–6
III. Mineral development 556–8
IV. Pastoral development has been great; in 1864 the total amount of wool exported was 16,691,666 lbs., while in 1884 there were 81,139,018 lbs. exported; the number of sheep has increased from 4,937,273 to 14,056,266; the number of cattle from 249,760 to 700,000; the number of horses from 49,409 to 170,000; and the number of pigs from 61,276 to over 200,000 . 558–9
V. Agricultural development tested by considering the area of land alienated from the Crown, and the area brought under cultivation, *tables* . . 559–60
VI. Manufactures described 561–3
The advantage that New Zealand will have in her manufacturing industries are: (1) her climate; she has neither an excess of heat or cold; (2) her large coal deposits; and (3) never failing water supplies in almost any part of the colony 563
VII. Increase of wealth, advance in credit, and general material advancement 563–7
VIII. Probable future development 567–8
Appendix I: Table showing total values of imports and exports for the years 1841 to 1884 inclusive 569
—— II. Table showing the average prices of provisions and live stock in New Zealand in 1864 and 1884 570

Discussion on Sir Robert Stout's Paper:

The President (Sir Rawson W. Rawson)

Remarks as to the progress of the colony 571–2

Hall (Sir John)

Regretted that the paper had not included the results of the census of 1886 instead of being based on that of 1881. Pointed out that a considerable sum is spent on secondary education; altogether the colony was spending about 1*l.* per head on education. The progress of industries was most satisfactory. Could not agree that the stock-carrying capacity of the colony was greater than that of any other country in the world . . . 574

Haast (Dr. von)

Mentioned the great increase of students at the college in Christchurch . 574–5

Mills (A.)

Importance of the colony depending on itself as largely as possible for manufactures 575–6

Paul (H. Moncreiff)

Referred to paper nine years ago by Mr. Archibald Hamilton. The gold exports of New Zealand were important. As regards the debt a comparison of the debt per head with that of the United Kingdom was misleading 576–7

Kerry-Nicholls (J. H.)

Thought that technical education was needed in the colony . . . 577

Bourne (S.)

Pointed out a statistical correction in the tables, and explained that the birth-rate should be computed on the numbers of child-bearing age, and not on the whole population 578

Longstaff (Dr. G. B.)

Vital statisticians were more and more seeing the great importance of considering what was called the age and sex distribution of population before drawing any deductions. This was more especially necessary in a colony where the population was totally unlike anything of which statisticians in this country had any experience. A population increasing largely by immigration was in a totally different state from one regulated mainly by births and deaths 578

PAGE

STOUT (Sir Robert). *Discussion on his Paper—contd.*

Hendriks (F.)

Inquired as to the method by which the figures as to real and personal property were arrived at. Thought that the amount of debt was not at all unsatisfactory 578–9

Craigie (Major)

Asked what was thought in the colony to be the probable future of the frozen mutton trade 579

Bell (Sir F. D., who read the paper on behalf of Sir Robert Stout), reply :

It would be admitted by statisticians generally that it was doubtful whether even in Europe any thoroughly reliable and accurate data existed upon which the vital statistics of a community could be based; and no doubt in New Zealand, as in every new colony, there were special elements to prevent the accuracy which, in a matter of that sort, was of such consequence. As to the statistics in the paper, the public officers charged with gathering them together took the utmost pains as to accuracy, and they were as complete as it was possible to get them in a young colony. The law provided that real property was to be valued at its value for sale by auction for cash; and though that condition necessarily involved matter of opinion, it was subjected to a test capable of being applied very rigidly, namely, that if the taxpayer undervalued his property unreasonably, it might be taken over by Government at the price so put upon it by the holder, with 10 per cent. added; while on the other hand, if the Government officials overvalued the property unreasonably, the holder might call upon the Government to take it at their valuation. This test was sufficient to ensure a reasonable accuracy in respect of real property. With regard to personal property the same pains were taken, with the object of ascertaining the state of the property of the community accurately, and the extent to which the exemptions could be claimed, as this exemption extended to all whose property was under 500*l.* 579–80

SUICIDES in England and Wales (see *Ogle*) 101

TARIFFS, Foreign and Colonial (see *Bourne*) 273
TOMLINSON (Mr.). *Remarks* in discussion (Jeans on Railway Traffic) 727
TRADE, Tariffs as affecting (see *Bourne*) 273
TUKE (Dr. H.). *Remarks* in discussion (Ogle on Suicides) . . 133

UNITED KINGDOM, population of (see *Longstaff*) 760

WAGES, rise in money, during the last fifty years 32–47
WALLACE (A. R.). *Remarks* in discussion (Booth on Occupations of the People) 436
WEALTH of France and other Countries (see *Flaix*) 186
WORKING CLASSES, further Notes on the Progress of the, in the last Half Century (see *Giffen*) 28
WORKING MEN'S co-operative organisations in Great Britain . . 755
WRECKS. *Lloyd's Statistics of Marine Casualties*, 1885 . . . 657

Table showing the number of vessels reported in "Lloyd's List" as "foundered," "stranded," &c., during the year 1885 (in quarters) . 657
—— showing the number of vessels reported in "Lloyd's List" as "abandoned," &c., together with results to ship and cargo, during the year 1885 (in quarters) 658
—— showing the number of vessels reported in "Lloyd's List" as "foundered," "stranded," &c., during the year 1885 659
—— showing the number of vessels reported in "Lloyd's List" as "abandoned," &c., together with results to ship and cargo, during the year 1885 660
Note explaining the alterations that have been made in the mode of rendering the statistics of wrecks and casualties 661

HARRISON AND SONS, PRINTERS IN ORDINARY TO HER MAJESTY, ST. MARTIN'S LANE.

(Corrected to 31st December, 1886.)

STATISTICAL SOCIETY.

(Founded 1834.)

9, ADELPHI TERRACE,

STRAND, W.C., LONDON.

Contents.

	PAGE
Council and Officers	2
Objects of the Society	3
Calendar for Session 1886–87	4
Programme of the Session 1886-87	5
Cost of Back Nos. of Journal (*if not out of Print*).	6
List of the former Patron and Presidents	7
Do. Fellows	8
Do. Honorary Members	49
Index to Rules	56
Rules of the Society	57
Regulations of the Library	61
Donors to the Library during the Year 1886	62
Form of Bequest	68

LONDON:

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Printers in Ordinary to Her Majesty.

1887.

STATISTICAL SOCIETY,

9, ADELPHI TERRACE, STRAND, W.C.,

LONDON.

Honorary President.

HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.

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(having filled the Office of President).

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AN OUTLINE OF THE OBJECTS OF

THE STATISTICAL SOCIETY.

The *Statistical Society* of London was founded, in pursuance of a recommendation of the British Association, for the Advancement of Science, on the 15th of March, 1834; its object being, the careful collection, arrangement, discussion and publication, of facts bearing on and illustrating the complex relations of modern society in its social, economical, and political aspects,—especially facts which can be stated numerically and arranged in tables;—and also, to form a Statistical Library as rapidly as its funds would permit.

The Society from its inception has steadily progressed. It now possesses a valuable Library and a Reading Room; ordinary meetings are held monthly from November to June, which are well attended, and cultivate among its Fellows an active spirit of investigation: the papers read before the Society are, with an abstract of the discussions thereon, published in its *Journal*, which now consists of forty-nine annual volumes, and forms of itself a valuable library of reference.

The Society has originated and statistically conducted many special inquiries on subjects of economic or social interest, of which the results have been published in the *Journal* or issued separately.

To enable the Society to extend its sphere of useful activity, and accomplish in a yet greater degree the various ends indicated, an increase in its numbers and revenue is desirable. With the desired increase in the number of Fellows, the Society will be enabled to publish standard works on Economic Science and Statistics, especially such as are out of print or scarce, and also greatly extend its collection of Foreign works. Such a well-arranged Library for reference, as would result, does not at present exist in England, and is obviously a great *desideratum*.

The Society is cosmopolitan, and consists of Fellows and Honorary Members, forming together a body, at the present time, of nearly *one thousand* Members.

The Annual Subscription to the Society is *Two Guineas*, and at present there is no entrance fee. Fellows may, on joining the Society, or afterwards, compound for all future Annual Subscriptions by a payment of *Twenty Guineas*.

The Fellows of the Society receive gratuitously a copy of each part of the *Journal* as published Quarterly, and have the privilege of purchasing back numbers at a reduced rate. The Library (reference and circulating), and the Reading Room, are open daily, for the convenience of Members.

Nomination Forms and any further information will be furnished, on application to the Assistant Secretary.

CALENDAR FOR SESSION 1886-87.

1886	MON.	TUES.	WED.	THURS.	FRI.	SATUR.	SUN.
NOV.	1	2	3	4	5	6	7
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1887	MON.	TUES.	WED.	THURS.	FRI.	SATUR.	SUN.
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	31						

The Ordinary Meetings of the Society, at which Papers are read and discussed, are marked in the Calendar above by **Black Figures.**

The Chair will be taken at 7.45 *p.m., precisely.*

These Meetings are now held, by permission of the Committee of Council on Education, in the **Theatre of the Royal School of Mines, 28, Jermyn Street, S.W.**

THE ANNIVERSARY MEETING

WILL BE HELD ON THE 28TH JUNE, 1887, AT 4 P.M.

STATISTICAL SOCIETY.

Programme of the Session 1886-87,

FOR THE

MONTHLY MEETINGS

HELD ON THE

THIRD TUESDAY IN THE MONTHS OF NOVEMBER—JUNE.

(except June.)

Tuesday,	Nov. 16.	Tuesday,	March 15.
„	Dec. 21.	„	April 19.
„	Jan. 18.	„	May 17.
„	Feb. 15.	„	June 14.

At the Royal School of Mines, Jermyn Street, S.W.

The following Papers have been read (Dec., 1886) :—

"On the Cost and the Conditions of Working Railway Traffic in different Countries." By JAMES S. JEANS, Esq. (Read in November.)

"Sliding Scales and other Methods of Wage-Arrangements in the North of England." By L. L. F. R. PRICE, Esq. (Read in December.)

The following Papers have been offered; and from these and from others that may yet be offered, a selection will be made by the Council :—

"On the relative Weakness and Strength of Nations." By EDWARD ATKINSON, Esq.

"Joint Stock Epidemics." By ERNEST CLARKE, Esq.

"The Size and Distribution of Agricultural Holdings in England and Abroad." By Major PATRICK G. CRAIGIE.

"The Distribution of Taxation." By THOMAS H. ELLIOTT, Esq.

"Another Ten Years' Accumulation of Capital." By ROBERT GIFFEN, Esq., LL.D.

"On the Balance of International Trade." By E. J. HARDCASTLE, Esq.

"Our Fiscal System." By H. F. HIBBERT, Esq.

"Recent Lunacy Statistics, with special reference to the asserted Increase of Insanity." By NOEL A. HUMPHREYS, Esq.

"A Century's Increase of Populations in relation to the principal Religions of the World." By the Rev. JAMES JOHNSTON.

"Remarks on the Mortality among the Troops serving in the United Kingdom, from Consumption." By ROBERT LAWSON, Esq., LL.D.

"On the Definition of Wealth." By HENRY D. MACLEOD, Esq., M.A.

"Some Statistics of the Suez Canal." By JOSEPH RABINO, Esq.

Visitors may attend the Monthly Meetings on the introduction of a Fellow.

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Vol. XXXVIII. (1875.)	1	–	–
Vol. XXXIX. (1876.)	1	–	–
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Vol. XLII. (1879.)	1	–	–
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Vol. XLVIII. (1885.)	1	–	–
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Members only, can obtain sets or single copies of any number of the *Journal*, at the Society's Rooms, 9, Adelphi Terrace, Strand, W.C., London.

By a resolution of the Council, dated 12th May, 1854, the price of back numbers of the *Journal* of the Society, charged to Members, was raised from one-half to three-fifths of the publishing price.

NOTE.—One or two numbers of the *Journal* are now out of print.

LIST OF THE FORMER

Patron and Presidents

OF THE

STATISTICAL SOCIETY,

From its Foundation, on 15th March, 1834.

Patron.

	Period.
His Royal Highness The Prince Consort, K.G.	1840–61

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The Right Hon. the Earl Fitzwilliam, F.R.S.	1847–49
The Right Hon. the Earl of Harrowby	1849–51
The Right Hon. the Lord Overstone	1851–53
The Right Hon. the Earl Fitzwilliam, K.G., F.R.S.	1853–55
The Right Hon. the Earl of Harrowby, K.G., D.C.L.	1855–57
The Right Hon. the Lord Stanley, M.P. (now Earl of Derby.)	1857–59
The Right Hon. the Lord John Russell, M.P., F.R.S. (afterwards Earl Russell.)	1859–61
The Right Hon. Sir J. S. Pakington, Bart., M.P., G.C.B. (afterwards Lord Hampton.)	1861–63
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The Right Hon. the Lord Houghton, D.C.L., F.R.S.	1865–67
The Right Hon. W. E. Gladstone, M.P., D.C.L.	1867–69
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William Farr, Esq., M.D., C.B., D.C.L., F.R.S.	1871–73
William A. Guy, Esq., M.B., F.R.S.	1873–75
James Heywood, Esq., M.A., F.R.S., F.G.S.	1875–77
The Right Hon. George Shaw Lefevre, M.P.	1877–79
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Robert Giffen, Esq., LL.D.	1882–84
Sir Rawson W. Rawson, K.C.M.G., C.B.	1884–86

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The names of Members of Council are printed in SMALL CAPITALS.

Year of Election.	
1876	Abrahams, Israel, F.R.G.S., 52, *Russell-square, W.C.*
1883	Ace, Rev. Daniel, D.D., F.R.A.S., *Laughton Vicarage, Gainsborough.*
1862	Acland, Sir Henry Wentworth, K.C.B., M.D., F.R.S., *Oxford.*
1869	Acland, The Rt. Hon. Sir Thomas Dyke, Bart. *Killerton, Exeter; and Athenæum Club, S.W.*
1879	Adam, Robert (*City Chamberlain*), *City Chambers, Edinburgh.*
1867	Addison, John, *Colehill Cottage, Fulham, S.W.*
1884	Agius, Edward Tancred, 90, *Belsize-park-gardens, N.W.*
1886	Ainslie, William George, M.P., 23, *Abingdon-street, S.W.*
1880	Aitchison, David, 5, *Pembridge-square, W.*
1876	Aitchison, William John, 2, *Princes-street, E.C.*
1885	Aitken Thomas, 75, *George-street, Edinburgh.*
1879	Akers-Douglas, Aretas, M.P., J.P., *Chilston Park, Maidstone, Kent.*
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1876	Allen, John T. R., 13, *York-road, Hove, Brighton.*
1875	Allen, Joseph, *St. Mildred's House, Poultry, E.C.*

Year of Election.	
1877	Allen, Joseph, *West Riding Chambers, Halifax, Yorkshire.*
1886	Anderson, Charles John, *Kelvin House, Grove-park, Chiswick.*
1871	Anderson, Sir James, F.R.G.S., F.G.S., 50, *Old Broad-street, E.C.*
1886	Andras, Henry Walsingham, F.I.A., 7, *Queen Victoria-street, E.C.*
1871	Angus, R. B., *Montreal, Canada.*
1884	Anning, Edward James, 78, *Cheapside, E.C.*
1885	Antonio, John, 39, *Dame-street, Dublin.*
1872	*Archibald, William Frederick A., M.A., 3, *Amersham-road, Putney, S.W.*
1883	Aschenheim, Gustav, 27, *Mincing-lane, E.C.*
1884	Ashwell, Henry, *Woodthorpe Grange, Sherwood, Notts.*
1886	Ashworth, Alfred, *Tabley Grange, Knutsford, Cheshire.*
1883	Askey, Frederick Day, *The Park, Highgate, N.*
1871	Atkinson, George W., 1, *Regent-street, Barnsley.*
1870	Avery, Thomas, *Church-road, Edgbaston, Birmingham.*
1872	*Babbage, Major-General Henry Prevost, *Yorkleigh, Bayshill, Cheltenham.*
1872	*Backhouse, Edmund, *Bank, Darlington.*
1879	Baden-Powell, George, C.M.G., M.P., (*Secretary,*) 8, *St. George's-place, Hyde Park Corner, S.W.*
1885	Bagenal, Philip H., 33, *Abingdon-villas, Kensington, W.*
1855	Bailey, Arthur Hutcheson, F.I.A., 7, *Royal Exchange, E.C.*
1858	Baines, Sir Edward, *St. Ann's-hill, Burley, Leeds.*
1881	Baines, Jervoise Athelstane, C.S., *Dhárwár, Bombay Presidency, India.*
1882	Baker, Daniel, 104, *Colmore-row, Birmingham.*

Year of Election.	
1884	Baker, George, 12, *Burwood-place, W.*
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1884	Baldwin, Edmund Chaplin,
1885	Balfe, Richard Ambrose, 2, *Foster-place, Dublin.*
1878	Balfour, The Right Hon. Arthur James, M.P., 4, *Carlton-gardens, S.W.*
1848	Balfour, General Sir George, K.C.B., M.P., D.L., 6, *Cleveland-gardens, Bayswater, W.*
1886	Balfour, Gerald William, M.P., 32, *Addison-road, Kensington, W.*
1873	Balfour, Jabez Spencer, 20, *Budge-row, Cannon-street, E.C.*
1865	Balfour, T. Graham, M.D., F.R.S. (*Vice-President*), *Coombe Lodge, Wimbledon-park, S.W.*
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1879	Bamber, Edward Fisher, C.E., 67, *Shaftesbury-road, Ravenscourt-park, W.*
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1880	*Baring, Thomas Charles, *High Beach, Loughton.*
1886	Barker, W. E., B.A., *Board of Trade, Whitehall-gardens, S.W.*
1884	Barlow, William Henry, F.R.S., C.E., 2, *Old Palace-yard, S.W.*
1885	Barratt, Thomas J., 38, *Great Russell-street, W.C.*
1883	Barron, Thomas Walter, M.A., M.B., M.R.C.S., &c., 10, *Old Elvet, Durham.*
1878	Barry, Francis Tress, *St. Leonard's-hill, Windsor.*
1881	Bartlett, Robert Vincent Osborne, *Richmond Villa, Castle-road, Newport, Isle of Wight.*
1873	Bate, George, 23, *Salem-street, Sunderland.*
1877	Bateman, Alfred Edmund (*Secretary*), *Board of Trade, Whitehall-gardens, S.W.*
1876	Baxter, Robert, 6, *Victoria-street, Westminster, S.W.*
1877	Bayfield, Arthur, 32, *Temple-row, Birmingham.*
1886	Bayly, Alfred, 117, *Powis-street, Woolwich.*
1873	*Baynes, Alfred Henry, F.R.G.S., 19, *Castle-street, Holborn, E.C.*

Year of Election.	
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1877	Beadel, William J., M.P., *Springfield Lyons, Chelmsford.*
1875	*Beardsall, Francis E. M., 25, *Booth-street, Manchester.*
1878	*Beauchamp, The Right Hon. Earl, 13, *Belgrave-square, S.W.*
1875	*Beaufort, William Morris, F.R.A.S., F.R.G.S., &c., 18, *Piccadilly, W.*
1883	Beaumont, Henry *Gordon Villa, The Park, Highgate, N.*
1882	*Beazeley, Michael Wornum, 3, *St. Paul's-road, Thornton Heath, Surrey.*
1883	Beckingham, James Horace, 48, *Percy Park, Tynemouth, Northumberland.*
1872	*Bedford, His Grace, the Duke of, *Woburn Abbey, Oakley, Bedford.*
1884	Bedford, James, *Woodhouse Cliff, Leeds.*
1882	*Beeton, Henry Ramie, 42, *Belsize-square, South Hampstead, N.W.*
1884	Begg, Alexander, *Canadian Pacific Railway Co., Montreal, Canada.*
1886	Begg, Ferdinand Faithfull, 10, *North-street, David-street, Edinburgh.*
1880	Bell, Sir Isaac Lowthian, Bart., J.P., F.R.S. *Rounton Grange, Northallerton, York, N.R.*
1884	Bell, James T., 3, *Great Kelvin-terrace, Hillhead, Glasgow.*
1884	*Bentley, Richard, F.R.G.S., *Upton, Slough, Bucks,*
1856	*Beresford-Hope, The Right Hon. Alexander J., M.P., D.C.L., 1, *Connaught-place, W.*
1884	Berg, Wilhelm, 37, *Mincing-lane, E.C.*
1886	Bernard, Henry Fitzgerald, *Rosslara, Ealing, Middlesex.*
1884	Bernard, William Leigh, 1, *New-court, Lincoln's-inn, W.C.*
1874	Bessborough, The Right Hon. The Earl of, *Bessborough, Pilltown, Ireland.*
1881	Besso, Marco, *Compagnia di Assicurazioni Generali, Trieste.*
1879	Bevan, G. Phillips, D.L., F.G.S., *The Glen, Bury St. Edmonds.*
1875	Bevan, Thomas, *Stone Park, near Dartford, Kent.*
1869	*Beverley, Henry, *United Service Club, Calcutta.*

Year of Election.

1879 *Bickford-Smith, William, M.P., J.P., D.L., &c.,
Trevarno, Helston, Cornwall.

1886 Biggs, Thomas Hesketh,
The Treasury, Calcutta.

1883 Binney, William,
13, *St. Helen's-place, E.C.; Hillfield, Hampstead, N.W.*

1884 Birch, Robert W. Peregrine, M. Inst. C.E.,
2, *Westminster-chambers, Victoria-street, S.W.*

1883 Birchenough, Henry, M.A.,
145, *Cheapside, E.C.*

1886 Bird, Stanley, G.,
64, *Maida Vale, N.W.*

1881 Bishop, George,
131, *Powis-street, Woolwich.*

1877 Bishop, George Houlton, M.R.C.S.,
47, *Argyle-road, Castle-hill, Ealing, W.*

1885 Blackley, The Rev. Canon William Lewery, M.A.,
King's Somborne Vicarage, Stockbridge, Hants.

1883 Blades, R. H.,
23, *Abchurch-lane, E.C.*

1883 Blades, William,
23, *Abchurch-lane, E.C.*

1884 Boileau, John Peter Hamilton, M.D., &c. (*Surgeon-Major*),
Army Medical Staff, Subathu, Panjab, Bengal, India.

1881 Bolitho, Thomas Robins,
Pendrea, near Penzance.

1880 Bolton, Joseph Cheney, M.P.,
Carbrook, Larbert, Stirlingshire.

1885 Bonar, James, M.A.,
Civil Service Commission, Westminster, S.W.

1885 Booth, Charles,
6, *Grenville-place, S.W., and* 2, *Talbot-court, E.C.*

1885 Bordman, Emanuel Linden,
Victoria House, Trinity-street, S.E.

1879 Bordman, Thomas Joseph Clarence Linden, LL.D.,
Victoria House, Trinity-street, Southwark, S.E.

1881 Bourdillon, James Austin,
United Service Club, Calcutta.

1881 Bourinot, John George,
Ottawa, Canada.

1871 Bourne, Stephen,
Abberley, Wallington, Surrey.

1883 Bourne, William,
Holford Chambers, Lord-street, Liverpool.

1877 Boutcher, Emanuel,
36, *Hyde Park-gardens, W.*

1885 Bovell, The Hon. Henry Alleyne, LL.B.,
Erin Hall, Barbados, West Indies.

1883 Bovey, John,
Bute Docks, Cardiff, and Glenholm, Penarth, Cardiff.

Year of Election.

1876 Bowen, Horace George,
Bank of England, E.C.

1879 Bowley, Edwin,
Burnt Ash-hill, Lee, Kent.

1886 Boyle, Courtenay, C.B.,
Board of Trade, Whitehall-gardens, S.W.

1883 Braby, Frederick, F.C.S., F.G.S.,
Bushey Lodge, Teddington.

1875 Braby, James, J.P.,
Maybanks, Rudgwick, Sussex.

1886 Bramwell, The Right Hon. Lord, F.R.S.,
34, *Cadogan-place, S.W.*

1873 Brassey, The Right Hon. Lord, K.C.B.
(*Honorary Vice-President*),
4, *Great George-street, S.W.; and* 24, *Park-lane, W.*

1864 *Braye, The Right Hon. Lord,
40, *Grosvenor-street, W.; and Stanford Hall, Rugby.*

1884 Breckon, John Robert,
32, *Fawcett-street, Sunderland.*

1886 Bretnall, William Henry,
Clinton House, Dartmouth-park-hill, N.

1883 Briesemann, Francis,
Whittington-avenue, Leadenhall-street, E.C.

1883 Brindle, Thomas,
North Bank, Tunbridge Wells.

1883 Broad, Harrington Evans,
1, *Walbrook, E.C.*

1876 Brodhurst, Bernard Edward, F.R.C.S.,
20, *Grosvenor-street, Grosvenor-square, W.*

1883 Brooke, C. B.,
16, *Leadenhall-street, E.C.*

1874 Broom, Andrew, A.C.A.,
2, *De Crespigny-terrace, Denmark-hill, S.E.*

1878 Brown, Alexander Hargreaves, M.P.,
12, *Grosvenor-gardens, S.W.*

1885 Brown, David,
147, *Leadenhall-street, E.C.*

1872 Brown, James Bryce, F.R.G.S.,
90, *Cannon-street, E.C.; and Bromley, Kent.*

1875 Browne, Thomas Gillespie C., F.I.A.,
11, *Lombard-street, E.C.*

1884 Browne, Willis,
Funds Department, India Office, Westminster, S.W.

1886 Bruce, Lord Henry Brudenell, M.P.,
36, *Eaton-place, S.W.*

1886 *Brunner, John Tomlinson,
Winnington Old Hall, Northwich, Cheshire.

1883 Buck, Sir Edward Charles,
Revenue and Agricultural Department, Simla, India.

Year of Election.	
1865	Bunce, John Thackray, *Longworth, Priory-road, Edgbaston, Birmingham.*
1884	Burbridge, Samuel,
1880	Burdett, Henry Charles, *The Lodge, Porchester-square, W.*
1873	*Burdett-Coutts, The Right Hon. the Baroness, 1, *Stratton-street, W.; and Holly Lodge, Highgate, N.*
1884	Burdett-Coutts, William, M.P., 1, *Stratton-street, Piccadilly, W.*
1882	Burgess, John, *Prospect House, Hailsham.*
1872	Burns, The Rev. Dawson, M.A., D.D., 15, *Great George-street, Westminster, S.W.*
1885	Burridge, Arthur Francis, F.I.A., 46, *Bath-road, Bedford Park, Chiswick*
1885	Burridge, Stephen, *Shirle Hill, Sheffield.*
1886	Burrows, Abraham, J.P., *Green Hall, Atherton, near Manchester.*
1880	Burt, Frederick, F.R.G.S., *Woodstock, Crouch End, N.*
1872	*Burton, The Right Hon. Lord, 101, *Eaton-square, S.W.; Rangemore, Burton-on-Trent.*
1886	Bush, W. Ernest, F.C.S. *Beaconsfield Club, Pall Mall, S.W.*
1883	Bush, William John, 20, *Artillery-lane, Bishopsgate street, E.C.*
1884	Buxton, Sydney Charles, M.P. 15, *Eaton-place, S.W.*
1880	Caine, William Sproston, M.P., 1, *The Terrace, Clapham Common, S.W.*
1857	Caird, Sir James, K.C.B., F.R.S. (*Honorary Vice-President and Trustee*), 8, *Queen's-gate-gardens, S.W.; & Cassencary, Creetown, N.B.*
1880	Caird, Robert Henryson, 6, *Petersham-terrace, S.W.*
1874	Campbell, Sir George, K.C.S.I., M.P., D.C.L., 17, *Southwell-gardens, South Kensington, S.W.*
1877	Campbell, George Lamb, *Market-street, Wigan.*
1879	Campbell-Colquhoun, Rev. John Erskine, *Chartwell, Westerham, Kent.*

Year of Election.

1881 Carden, Lionel Edward Gresley (*H.M. Consul*),

1872 *Carillon, J. Wilson, F.S.A., F.R.G.S.,
14, *Dynevor-road, Richmond, Surrey.*

1885 Carmichael, Thomas D. Gibson,
Castlecraig, Dolphinton, N.B.

1886 Carpenter, Frederick,
14, *Sussex-villas, Kensington, W.*

1876 Carphin, James Rhind, C.A.,
14, *Hanover-street, Edinburgh.*

1877 Carter, E. Harold, J.P.
33, *Waterloo-street, Birmingham.*

1883 Carter, Joseph Robert,
2, *Steeles-road, N.W., and* 14, *King's Arms-yard, E.C.*

1878 *Casley, Reginald Kennedy, M.D.,
Northgate-street, Ipswich.

1885 Casson, William A.,
Local Government Board, Whitehall, S.W.

1880 Castle, Robert,
18, *Merton-street, Oxford.*

1883 Cater, J. J.,
39, *Lombard-street, E.C.*

1883 Cattarns, Richard,
Enfield House, Grove Park, Lee, S.E.

1881 Causton, Richard Knight,
3, *Clanricarde-gardens, W.*

1858 Chadwick, David,
The Poplars, Herne Hill, Dulwich, S.E.

1834 Chadwick, Edwin, C.B. (*Corr. Mem., Inst. of France*)
Park Cottage, East Sheen, Mortlake, S.W.

1869 Chadwick, John Oldfield, F.R.G.S.,
24, *Budge-row, Walbrook, E.C.*

1884 Chailley, Joseph,
9, *Rue Guy de la Brosse, Paris.*

1880 *Chamberlain, The Right Honourable Joseph, M.P.,
40, *Prince's-gardens, S.W.*

1886 Chamberlain, Richard, M.P.,
Westbourne-road, Birmingham.

1886 Chapman, Samuel,
15, *Broomsleigh-street, West Hampstead, N.W.*

1884 Chater, J., *c/o* Patrick McGuire,
57, *Amherst-street, Calcutta.*

1851 *Cheshire, Edward,
3, *Vanbrugh Park, Blackheath, S.E.*

1883 Childs, Walter,
16, *Oxford-gardens, North Kensington, W.*

1853 Chisholm, David, F.I.A.,
9, *Rillbank-terrace, Edinburgh*

1886 *Chisholm, George Goudie, M.A., B.Sc., F.R.G.S.,
83, *Appach-road, Brixton, S.W.*

Year of Election.	
1869	CHUBB, HAMMOND, B.A., *Bickley, Kent.*
1849	Clark, Gordon Wyatt, *Mickleham Hall, near Dorking, Surrey.*
1886	Clark, H. J., *Port of Spain, Trinidad.*
1856	Clark, Sir John Forbes, Bart., *Tillypronie, Tarland, Aberdeen.*
1884	Clark, Robert, 223, *Cromwell-road, S.W.*
1871	Clarke, Ebenezer, jun., *Grove-road, Walthamstow.*
1882	*Clarke, Ernest, *Share and Loan Department, Stock Exchange, E.C.*
1877	*Clarke, Henry, L.R.C.P., *H.M. Prison, Wakefield, Yorks.*
1876	Clarke, Henry Harcourt Hyde,
1856	*CLARKE, HYDE, 32, *St. George's-square, S.W.*
1869	Cleghorn, John, 3, *Spring-gardens, S.W.*
1850	*Cleveland, His Grace the Duke of, K.G., *Battle Abbey, Sussex.*
1853	Clirehugh, William Palin, F.I.A., 66, *Cornhill, E.C.*
1877	Cobb, B. Francis, 79, *Cornhill, E.C.*
1873	Cockle, Captain George, F.R.G.S., 9, *Bolton-gardens, South Kensington, S.W.*
1884	Cockshott, John James, 3, *Tulketh-street, Chapel-street, Southport.*
1877	COHEN, LIONEL LOUIS, M.P. (*Vice-President*), 9, *Hyde Park-Terrace, W.*
1838	Colebrooke, Sir Thomas Edward, Bart., *Athenæum Club, S.W.*
1859	Coles, John, F.I.A., 39, *Throgmorton-street, E.C.*
1874	Collinson, John, F.R.G.S., 90, *Cromwell-road, S.W.*
1883	Collmann, John S., 12, *Tokenhouse-yard, E.C.*
1882	*Collum, Rev. Hugh Robert, M.R.I.A., F.R.C.I., *Vicar of Leigh, near Tonbridge, Kent.*
1867	Colman, Jeremiah James, M.P., *Carrow House, Norwich.*
1878	Colomb, Captain J. C. R., M.P., R.M.A., J.P., *Droumquinna, Kenmare, Kerry.*
1884	Colyar, Henry Anselm De, 24, *Palace-gardens-terrace, W.; Athenæum Club, S.W.*

Year of Election.

1886 Coode, Sir John, K.C.M.G., C.E.,
5, *Westminster Chambers, Victoria-street, S.W.*

1884 Cook, Edward Samuel (Cook & Philpot),

1843 *Copperthwaite, William Charles,
New Malton, Yorkshire.

1874 Corbett, John, M.P.,
20, *Hertford-street, Mayfair W.*

1883 Corgialegno, M.,
71, *Cornhill, E.C.*

1873 Cork, Nathaniel, F.R.G.S.,
18, *Birchin-lane, E.C.*

1878 Cornish, William Robert, F.R.C.S. (*Surgeon Major*),
Messrs. King & Co., 45, *Pall Mall, S.W.*

1883 Cosens, Frederick William,
7, *Melbury-road, Kensington, W.*

1862 Courtney, Leonard Henry, M.A., M.P.,
15, *Cheyne Walk, Chelsea, S.W.*

1882 Cowen, Charles,
37, *Main-street, Port Elizabeth, Cape of Good Hope.*

1873 Cowper, The Hon. Henry Frederick,
4, *St. James's-square, S.W.*

1885 Craddock, Joseph,
Oak Lea, Cannock, near Stafford.

1874 Craigie, Major Patrick George,
6, *Lyndhurst-road, Hampstead, N.W.*

1870 Craik, George Lillie,
29, *Bedford-street, Strand, W.C.*

1883 Cranwell, William Barry,
42, *Portsdown-road, W.*; 9, *New Broad-street, E.C.*

1878 Crewdson, Ernest,
5, *Norfolk-street, Manchester.*

1886 Crispin, Edward,
66, *Cornhill, E.C.*

1880 *Crompton-Roberts, Charles Henry.
16, *Belgrave-square, S.W.*

1885 Cropper, James,
Ellergreen, Kendal.

1883 Cullen, Thomas, F.C.A.
21, *Warwick-street, Regent-street, W.*

1875 Cunningham, David, C.E.,
Works' Office, Harbour-chambers, Dundee.

1883 Cunningham, Rev. William, M.A.,
2, *St. Paul's-road, Cambridge.*

1884 Curtis, Charles, Edward,
Deanyers, Alton, Hants.

1879 Curtis, Robert Laebon, F.S.I.,
120, *London Wall, E.C.*

1873 Czarnikow, Cæsar,
Mitcham, Surrey.

Year of Election.	
1886	Dale, David, *Darlington.*
1869	Dalyell, The Hon. Robert Anstruther, C.S.I., *India Office, Westminster, S.W.*
1884	Daniell, Clarmont J., *c/o Messrs. H. S. King & Co., 45, Pall Mall, S.W.*
1880	Danvers, Frederick Charles, *India Office, Westminster, S.W.*
1873	Danvers, Sir Juland, K.C S.I., *India Office, Westminster, S.W.*
1886	Darrell, Charles, *Sidcup, Kent.*
1885	Davidson, Madgwick Spicer, 28, *Prince's-square, W.*
1869	Davies, James Mair, 75, *West Regent-street, Glasgow.*
1874	Davies, William Henry, 51, *Tregunter-road, S.W.*
1886	Dawson, J. Eugene, *Colonial Secretary's Department, Sierra Leone.*
1880	Debenham, Frank, 26, *Upper Hamilton-terrace, St. John's Wood, N.W.*
1885	De Broë, Emile Conrad De Bichin, 14, *Birdhurst Hill, East Hill, Wandsworth, S.W.*
1879	*De Ferrieres, The Baron Du Bois, J.P., *Bay's-hill House, Cheltenham.*
1884	De Jouy, J. Henry B., *La Prefecture, Quimper, Finisterre, France.*
1883	*De Keyser, Alderman Polydore, *Chatham House, Grove-road, Clapham Park, S.W.*
1877	Deloitte, William Welch, 4, *Lothbury, E.C.*
1886	Denison, William Beckett, 138, *Piccadilly, W.*
1886	Denman, Arthur Lemoine, 110, *Cambridge-gardens, North Kensington, W.*
1873	Dent, Edward, *Fernacres, Fulmer, near Slough, Bucks.*
1855	*Derby, The Right Hon. the Earl of, F.R.S., D.C.L. (*Honorary Vice-President*), *St. James's-square, S.W.; Knowsley, Prescot, Lancashire*
1884	Dethridge, J. Frank, *The Hermitage, Ravenscourt-park, W.*
1877	Dever, Henry, 4, *Lothbury, E.C.*
1885	Devonshire, Thomas Harris, 1, *Frederick's-place, Old Jewry, E.C.*
1877	De Worms, Baron Henry, M.P., F.R.A.S., *Carlton Club, S.W.*

Year of Election.

1885 Dibley, George, Jun.,
22, *Brook-street, Grosvenor-square, W.*

1884 Dickson, Donald William,

1866 *Dilke, The Right Hon. Sir Charles Wentworth, Bart., LL.M.,
76, *Sloane-street, S.W.*

1873 Dixon, George, M.P.,
The Dales, Edgbaston, Birmingham.

1881 Dobell, Richard R.,
Quebec, Canada.

1875 Doxsey, Rev. Isaac,
186, *The Grove, Camberwell, S.E.*

1878 Doyle, Patrick, C. E., F.G.S., M.R.A.S.,
Messrs. Apcar and Co's. Collieries, Seetarampore, India.

1878 Duignan, William Henry,
Walsall, Staffordshire.

1875 Dun, John,
Parr's Banking Company Limited, Warrington.

1870 Duncan, James,
9, *Mincing-lane, E.C.*

1886 Dundonald, the Right Hon. the Earl of,
50, *Eaton-place, S.W.*

1884 Dunn, Archibald Joseph,
6, *Westgate-terrace, South Kensington, S.W.*

1878 *Dunraven, The Right Hon. Earl of, K.P.,
Kenry House, Putney Vale, S.W.

1885 Dyer, William John,
17, *Montpelier-row, Blackheath, S.E.*

1883 Edgeworth, Francis Ysidro, M.A.,
Savile Club, 107, *Piccadilly, W.*

1836 Edmonds, Thomas Rowe, B.A.,
72, *Portsdown-road, Maida-vale, W.*

1869 Edmonds, William,
Annesley House, Southsea.

1880 Egerton of Tatton, The Right Honourable Lord,
7, *St. James's-square, S.W.*

1872 Elliot, Sir George, Bart., M.P.,
Park-street, Park-lane, W.

1885 Elliott, Thomas Henry,
Inland Revenue Office, Somerset House, W.C.

1885 Elliott, William,
5, *Westmoreland-street, Dublin.*

1885 Elliott, William Henry,
122 *Mansion House-chambers, Queen Victoria-street, E.C.*

Year of Election	
1877	Ellis, Arthur, 42, *High-street, Highgate, N.*
1886	Ellis, John Edward, M.P., 40, *Pont-street, S.W., and Reform Club, S.W.*
1873	Emanuel, Lewis, 91, *Gloucester-terrace, Hyde Park, W.*
1877	Emmott, W. T., *Blackfriars-street, Manchester.*
1882	Essex, Benjamin Smily, 48, *Pall Mall, S.W.*
1879	Evans, Henry Jones, J.P., *Brecon Old Bank, Cardiff.*
1834	Eversley, The Right Hon. Viscount, D.C.L., LL.D., 114, *Eaton-square, S.W.; and Winchfield, Hants.*
1875	Faraday, Frederick J., 17, *Brazenose-street, Manchester.*
1868	Farrell, John Douglas, *Bank of England, West Branch, Burlington-gardens, W.*
1878	Farren, George, J.P., A.M.Inst.C.E., *Carnarvon.*
1878	Farrer, Sir Thomas Henry, Bart., *Board of Trade, Whitehall Gardens, S.W.*
1876	Fearnside, Henry, M.B., F.R.C.P., *De Vere Mansions West*, 34, *De Vere-gardens, W.*
1882	Fell, Arthur, M.A., 46, *Queen Victoria-street, E.C.*
1864	Fellows, Frank Perks, 8, *The Green, Hampstead, N.W.*
1884	Felton, George Frederick, 6, *Church-walks, Llandudno, North Wales.*
1885	Ferguson, Ronald Crawfurd Munro, M.P., 23, *Arlington-street, S.W.; and Raith, Kirkcaldy, N.B.*
1880	Finch, George Henry, M.P., *Burley-on-the-hill, Oakham.*
1880	Findlay, George, *London and N. Western Railway, Euston Station, N.W.*
1884	Findlay, James Arbuckle, *Bishops Stortford, Herts.*
1880	Finlaison, Alexander John, F.I.A., 19, *Old Jewry, E.C.*
1884	*Finnemore, Robert Isaac, J.P., F.R.G.S., &c. *Durban, Natal, South Africa.*
1885	*Fitz-Gerald, Major William George, M.A, *United Service Club, Dublin.*

Year of Election.	
1884	Fitzmaurice, Lord Edmond George, 12, *Arlington-street, S.W.*
1882	Foley, Patrick James, M.P., *Pearl Ins. Co., Adelaide-place, London Bridge, E.C.*
1878	Follett, Charles John, M.A., B.C.L., *H.M. Custom House, E.C.*
1886	Ford, Alfred, 55, *Farleigh-road, Stoke Newington, N.*
1875	Fordham, Edward King, J.P., D.L. *The Bury, Ashwell, Baldock, Herts.*
1841	Fortescue, The Right Honourable Earl, *Castle Hill, South Molton, Devon.*
1884	Fosbery, William Thomas Exham, *The Castle-park, Warwick.*
1885	Foster, John Collie, 37, *Gower-street, W.C.*
1886	Fowler, The Right Hon. Henry Hartley, M.P., *Woodthorne, Wolverhampton.*
1877	*Fowler, Alderman Sir Robert Nicholas, Bart., M.P., *Elm Grove, Corsham, Wilts.*
1868	Fowler, William, 38, *Grosvenor-square, S.W.*
1878	Foxwell, Professor H. Somerton, M.A. (*Vice-President*), *St. John's College, Cambridge.*
1879	Francis, George Edward, *Staunton Coleford, Gloucestershire.*
1883	Fraser, George John, 34, *Leadenhall-street, E.C.*
1886	Fream, Professor William, B.Sc., Lond., F.L.S., F.G.S., *College of Agriculture, Downton, Salisbury.*
1844	*Freeland, Humphrey William, J.P., *Athenæum Club, S.W.; and Chichester.*
1884	Frith, Walter Halsted, 69, *Lombard-street, E.C.*
1886	Fuller, George Pargiter, M.P., *Neston-park, Corsham, Wilts,*
1878	Fuller, William Palmer, 50, *Gresham-street, E.C.*
1879	Gairdner, Charles, *Broom, Newton Mearns, Renfrewshire.*
1852	Galsworthy, Edwin Henry, J.P., F.I.A., 18, *Park-crescent, Portland-place, W.*

Year of Election.

1873 *Galton, Capt. Douglas, R.E., C.B., LL.D., F.R.S.,
12, *Chester-street, Grosvenor-place, S.W.*

1860 Galton, Francis, F.R.S., F.R.G.S.,
42, *Rutland-gate, S.W.*

1881 Garnett, Frederick Brooksbank, C.B.,
4, *Argyll-road, Kensington, W.*

1881 Garraway, The Hon. David G.,
Castries, St. Lucia, West Indies.

1879 *Gassiot, John Peter, J.P.,
The Culvers, Carshalton, Surrey,

1872 Gastrell, Major-General James Eardley,

1883 Gates, Jacob S.,
9, *Fenchurch-avenue, E.C.*

1880 *Gates, John Benjamin, jun., A.C.A.,
47, *Warwick-street, Regent-street, W.*

1881 *Gatty, William Henry,
Market Harborough, Leicestershire.

1885 Gibb, George S.,
North-Eastern Railway Company, York.

1872 Gibb, Thomas Eccleston,
16, *Lady Margaret-road, N.W.*

1874 Gibbs, Alban George Henry,
82, *Portland-place, W.*

1871 Gibbs, George Sleight,
Derry Lodge, Darlington.

1882 Gibbs, Richard,
The Hollies, Weybridge.

1867 *Giffen, Robert, LL.D. (*Honorary Vice-President*),
44, *Pembroke-road, Kensington, W.*

1877 Gilbert, William H. Sainsbury,
9, *Old Jewry, E.C.*

1878 *Glanville, Silvanus Goring,
238, *Lewisham High-road, S.E.*

1860 Glover, John, J.P.,
88, *Bishopsgate-street Within, E.C.*

1886 Glyn, Henry Richard,
67, *Lombard-street, E.C.*

1877 Goddard, Frederick Robertson,
19, *Victoria-square, Newcastle-on-Tyne.*

1884 Gonner, Edward C., B.A.,
57, *Finchley New-road, N.W.*

1877 Good, Alfred,
57, *Moorgate-st., E.C.; Downe Lodge, Beckenham, Kent.*

1886 Goodrich, Harry St. Aubyn (*Calcutta*),
c/o Messrs. H. S. King and Co., 65, *Cornhill, E.C.*

1881 Goodrich, Samuel G.,
P.O. Box 1147, *New York City, New York, U.S.A.*

1885 Goodsall, David Henry, F.R.C.S.,
17, *Devonshire-place, W.*

Year of Election	
1868	GOSCHEN, THE RIGHT HON. GEORGE JOACHIM (*President*), 69, *Portland-place, W., and Seacox-heath, Hawkhurst.*
1855	*Gosset, John Jackson, *Thames Ditton, Surrey.*
1885	Goulding, William Purdham, F.S.I., 41, *Moorgate-street, E.C.; and* 18, *Mercers-road, N.*
1853	Gover, William Sutton, F.I.A., 4, *Queen-street-place, Southwark Bridge, E.C.*
1886	Grafton, Frederick William, *Hope Hall, Manchester.*
1876	Grahame, James, C.A., 12, *St. Vincent-place, Glasgow.*
1885	Grant, Thomas Rennie, 10, *Harrington-gardens, Kensington, S.W.*
1875	Granville, Joseph Mortimer, M.D., F.G.S., &c., 14, *Hanover-square, W.*
1847	Gray, Thomas, 34, *Fenchurch-street, E.C.*
1886	Green, Oswald R., 7, *Finsbury-square, E.C.*
1877	Greene, William Thomas, M.A., M.D., *Moira House, Peckham Rye, S.E.*
1881	Greening, William H., *Oakfield Cottage, Balsall Heath, Birmingham.*
1883	Griffin, Josiah, *Vanburgh Park, Blackheath, S.E.*
1868	Griffith, Edward Clifton, 1, *Waterloo-place, S.W.*
1884	Griffith, T. Risely, 39, *Bridge-avenue, Hammersmith, W.*
1883	Grimshaw, Thomas Wrigley, M.D., M.A., &c. (Registrar-General of Ireland), *Priorsland, Carrickmines, Co. Dublin.*
1886	Grimston, The Right Hon. Viscount, M.P., *Cell Barnes, St. Albans.*
1883	Gunther, Charles, 9, *Fenchurch-avenue, E.C.*
1875	Gunn, Arthur, 31, *Gloucester-road, Gloucester-gate, Regent's Park, N.W.*
1878	Guthrie, Charles, *London Chartered Bank of Australia, Melbourne, Victoria.*
1885	Guthrie, Edwin, *Victoria Park, Manchester.*
1880	*Gwynne, James Eglinton A., J.P., F.S.A., 97, *Harley-st., W.; Folkington Manor, Polegate, Sussex.*

Year of Election.	
1884	Haas, Hendrik Christiaan, 32, *Fenchurch-street, E.C.*
1884	Hadley, Joseph, 5, *Argyll-place, Regent-street, W.*
1883	Hadrill, Henry John, 60, *Mark-lane, E.C.*
1873	*Haggard, Frederick T., *East Burnham Grove, near Slough, Bucks.*
1884	Hague, John, *King-street, Toronto, Canada.*
1869	Hall, James Macalester, *Killean House, Tayinloan, Argyleshire.*
1883	Hall, Sir John, K.C.M.G., *c/o Agent-General for New Zealand*, 7, *Westminster Chambers, Victoria-street, S.W.*
1878	Hallett, Thomas George Palmer, M.A., *Claverton Lodge, Bath.*
1873	Hamilton, The Right Hon. Lord George Francis, M.P., 17, *Montagu-street, Portman-square, W.*
1883	Hamilton, James Thomas, 23, *High-street, Southampton.*
1882	Hamilton, John, *Junior Carlton Club, Pall Mall, S.W.*
1882	Hamilton, John James, *The Grange, Chislehurst.*
1879	Hamilton, Rowland, *Oriental Club, Hanover-square, W.*
1884	*Hammersley, Hugh Greenwood, *Sun House, 6, Chelsea Embankment, S.W.*
1873	Hanbury, Robert William, M.P., *Ilam Hall, Ashbourne, Derbyshire.*
1885	*Hancock, Charles, M.A., Oxon., 2, *Cloisters, Temple, E.C.; and Reform Club, S.W.*
1869	Hancock, William, 35, *Cornhill, E.C.*
1875	Hankey, Ernest Alers, *Elmhurst, Bickley-park, Kent.*
1879	Hankey, Thomson, 59, *Portland-place, W.*
1876	Hansard, Luke, 68, *Lombard-street, E.C.*
1883	Hansell, Robert B., *Moor Oaks-road, Broomhill, Sheffield.*
1885	Harbhamji, Prince, of Morbi, *Rajcoomar College, Rajkot, Kathiawar, Bombay, India.*
1871	*Harcourt, Right Hon. Sir William Vernon, Q.C., M.P., F.R.S., 7, *Grafton-street, Bond-street, W.*
1886	*Hardcastle, Basil William, *Beechenden, Hampstead, N.W.*
1886	Hardcastle, E. J., *Oriental Club, Hanover-square, W.*

Year of Election.	
1877	Harding, Colonel Charles, F.R.G.S., 10, *St. Swithin's-lane, E.C.*
1883	Harding G. P., *La Chaumiere, Trouville, France.*
1884	Hardy, George Francis, F.I.A., 32, *Mildmay Chambers, Broad-street, E.C.*
1883	Hardy, William Henry, F.C.A., 5, *Great Winchester-street, E.C.*
1868	Harris, David, *Caroline Park, Granton, Edinburgh.*
1882	Harris, Frederick,
1882	Harris, William James, 75, *Linden-gardens, Bayswater, W.*
1884	Hart, James, 19, *Fenchurch-street, E.C.*
1884	Hartel, Adolph, 22, *Arundel-square, Barnsbury-park, N.*
1870	Hartley, Fountain John, *Gloucester House*, 97, *Cazenove-road, Upper Clapton, N.*
1881	Harvey, Alfred Spalding, B.A., 67, *Lombard-street, E.C.*
1884	Harvey, Thomas Morgan, 1, *Gresham Buildings, Basinghall-street, E.C.*
1876	Hawkins, Alfred Templeton, F.R.G.S., 22, *Budge-row, Cannon-street, E.C.*
1879	Hawksley, Thomas, C.E., F.R.S., &c., 30, *Great George-street, Westminster, S.W.*
1880	Hazell, Walter, *Ellerslie, Bromley, Kent.*
1885	Hay, John, 26, *Chapel-street, Liverpool.*
1884	Hedley, Robert Wilkin, 31*a*, *Colmore-row, Birmingham.*
1877	Hedley, Thomas Fenwick,
1870	Hefford, George V., *Rugby.*
1883	Heilgers, Robert Phillip, 22, *Great St. Helens, E.C.*
1865	Hendriks, Augustus, F.I.A., 7, *Cornhill, E.C.*
1855	*Hendriks, Frederick, F.I.A., 1, *King William-street, E.C.*
1886	Henshaw, Richard S. 31, *Bedford-street, Strand, W.C.*
1877	*Herbage, William, *London & South Western Bank*, 7, *Fenchurch-street, E.C.*
1884	Herbert, W. E., 69, *Buchanan-street, Glasgow.*

Year of Election.	
1881	Hewat, Archibald, F.I.A., F.F.A., 22, *George-street, Edinburgh.*
1834	*Heywood, James, M.A., F.R.S., F.G.S (*Honorary Vice-President and Trustee*), 26, *Palace-gardens, Kensington, W.; Athenæum Club, S.W.*
1886	Hibbert, H. F., *Park-road, Chorley, Lancashire.*
1869	Hickson, Joseph, J.P., *Montreal, Canada.*
1878	*Hill, Frederick Morley, 22, *Richmond-road, Barnsbury, N.*
1878	Hillingdon, The Right Hon. the Lord, *Camelford House Park-lane, W.*
1884	Hoare, Alfred, 37, *Fleet-street, E.C.*
1879	Hoare, H. N. Hamilton, 37, *Fleet-street, E.C.*
1870	*Hoare, Henry, 22, *Bryanston-square, W.*
1884	Hollond, John Robert, 1, *Upper Berkeley-street, Portman-square, W.*
1874	Hooper, Rev. George Downes, "*Ellerslie,*" *Sunny Gardens, Hendon, N.W.*
1879	Hooper, George Norgate, *Elmleigh, Hayne-road, Beckenham, Kent.*
1878	Hooper, Wynnard, 2, *Pembroke-gardens, Kensington, W.*
1883	Howell, Francis Buller,
1883	Howell, George, M.P., *Hampden House, Ellingham-road, Shepherd's Bush, W.*
1885	Howell, Jenkin, *Aberdare, South Wales.*
1853	*Hubbard, The Right Hon. John Gellibrand, M.P. *Bank of England, E.C.*
1864	Hudson, Thomas, 17, *Hilde-road, Brixton, S.W.*
1878	Hughes, John, 3, *West-street, Finsbury-circus, E.C.*
1883	Hull, Edmund Charles Pendleton, 1, *Fenchurch-avenue, E.C.*
1872	Humphreys, George, M.A., F.I.A., 79, *Pall Mall, S.W.*
1874	Humphreys, Noel Algernon, *General Register Office, Somerset House, W.C.*
1873	Hunt, Sir Henry Arthur, C.B., 45, *Parliament-street, S.W.*
1883	Hunt, Richard Aldington, A.I.A., *Moor-street, Birmingham.*

Year of Election

1885 Hunter, William Alfred, LL.D., M.P.,
Fountain-court, Temple, E.C.

1857 Hurst, George,
King's Brook House, St. Mary's, Bedford.

1877 Huskinson, Thomas,
Epperstone Manor, Nottingham.

1879 Hyde, Major-General Henry, R.E.,
India Office, Westminster, S.W.

1866 Ince, Henry Bret, Q.C.,
20, *Old-square, Lincoln's-inn, W.C.*

1869 Ingall, Samuel, F.R.G.S.,
Kent-end, Forest-hill, Kent, S.E.

1874 *Ingall, William Thomas Fitzherbert Mackenzie,
6, *Drapers'-gardens, E.C.*

1886 Ingham, Edward,
8, *Collingham-place, Cromwell-road, S.W.*

1869 *Inglis, Cornelius, M.D.,
Athenæum Club, S.W.

1839 Irving, John,
94, *Eaton-place, S.W.*

1864 *Ivey, George Pearse,
South Villa, Bexley-heath, Kent.

1885 Jackson, Henry,
158, *The Common, Peckham Rye, S.E.*

1880 *Jackson, William Lavies, M.P.,
Chapelallerton, Leeds.

1884 Jacoby, James Alfred, M.P.,
Normanton Hall, Normanton-on-the-Wolds, Notts.

1879 Jamieson, George Auldjo,
37, *Drumsheugh-gardens, Edinburgh.*

1872 Janson, Frederick Halsey, F.L.S.,
41, *Finsbury-circus, E.C.*; 7, *Craven-hill, Bayswater, W.*

1878 Jeans, James Stephen,
Victoria Mansions, Victoria-street, Westminster, S.W.

1883 Jenkins, Benjamin,
3, *Fenchurch-avenue, E.C.*

1881 *Jersey, The Right Hon. the Earl of,
3, *Great Stanhope-street, W.*

1881 Johnson, Edwin Eltham,
110, *Cannon-street, E.C.*

Year of Election.	
1871	Johnson, Edmund, 1, *Castle-street, Holborn, E.C.*
1880	Johnson, Walter, *Rounton Grange, Northallerton.*
1872	Johnston, Francis John, *Lamas, Chislehurst.*
1881	Johnston, Rev. James, *Gleneve, Highland-road, Upper Norwood, S.E.*
1883	Johnston, Thomas, *Broomsleigh Park, Seal, Sevenoaks.*
1878	Johnstone, Edward, 14, *Abbeville-road, Cavendish-road, Clapham, S.W.*
1884	*Jones, Edwin, J. P., 141, *Cannon-street, E.C.*
1878	Jones, Henry R. Bence, *Board of Trade, Whitehall-gardens, S.W*
1874	Jones, Herbert, 15, *Montpelier-row, Blackheath, S.E.*
1880	Jones, Robert Hesketh, *St. Augustine's, Hayne-road, Beckenham, Kent.*
1877	Jones, Theodore Brooke, *Georgeville, Harrogate, Yorks.*
1883	Joseph, Samuel Solomon, 29, *Hyde Park-gardens, W.*
1884	Josolyne, John Augustus, F.I.C.A., F.S.A., &c., 28, *King-street, Cheapside, E.C.*
1858	Jourdan, Francis, *Avenue House, Hampstead, N.W.*
1873	Kay, Duncan James, 60, *Queen's-gate, S.W.*
1877	Kealy, James William, 26. *Moorgate-street, E.C.*
1885	Keen, William Brock, 15, *King-street, Cheapside, E.C.*
1874	Kelly, Charles, M.D., F.R.C.P., *Worthing, Sussex.*
1884	Kelly, Edward Festus, 51, *Great Queen-street, Lincoln's-inn-fields, W.C.*
1867	Kelly, Edward Robert, A.M., 51, *Great Queen-street, Lincoln's-inn-fields, W.C.*
1883	Keltie, John Scott, 52, *Cromwell-avenue, Highgate, N.*
1884	Kemp, John, 46, *Cannon-street, E.C.*
1884	*Kennedy, Charles Malcolm, C.B., *Foreign Office, S.W.*

Year of Election.	
1886	Kennedy, John Gordon, *H.B.M. Embassy, Rome, Italy.*
1878	Kennedy, J. Murray, *New University Club, St. James's-street, S.W.*
1878	Kennedy, Thomas, 11, *Old Jewry-chambers, E.C.*
1881	*Kennett-Barrington, Sir V. Hunter, M.A., LL.M., Cantab, 17, *Hyde Park-gardens, W.*
1883	*Keynes, John Neville, M.A., B.Sc. 6, *Harvey-road, Cambridge.*
1884	Kimber, Henry, M.P., 79, *Lombard-street, E.C.*
1852	Kimberley, The Right Honourable the Earl of, M.A., P.C., 35, *Lowndes-square, S.W.*
1883	*King, Bolton, B.A., 10, *Upper Berkeley-street, W.*
1884	Kirby, Horace Woodburn, F.C.A., 19, *Birchin-lane, E.C.*
1879	Kirkwood, Anderson, LL.D., *Melville-terrace, Stirling, N.B.*
1878	*Kusaka, Yoshio, *First National Bank, Tokio, Japan.*
1869	Kyshe, John Benjamin, 5, *Princes-terrace, Princes-square, Bayswater, W.*
1884	Laishley, Richard, jun., F.R.G.S., F.R.S.L., &c., *Auckland, New Zealand.*
1874	Lang, George Murray, R.N., 18, *Cheyne-walk, Chelsea, S.W.*
1881	Langton, Henry Currer, *Docklands, Ingatestone, Essex.*
1883	Last, William Harrison, *Inland Revenue, Somerset House, W.C.*
1885	Latham, Baldwin, M.Inst.C.E., 7, *Westminster-chambers, S.W.*
1877	Laurance, Henry, 39, *Old Bond-street, W.*
1874	Lawes, Sir John Bennett, Bart., LL.D., F.R.S., F.C.S., *Rothamsted-park, St. Albans.*
1878	Lawrence, Alexander Macclesfield, *West Brae, Stonebridge-park, Willesden, N.W.*
1873	Lawrie, James, F.R.G.S., *Kelvin House, Quadrant-road, Highbury, N.*
1883	Lawson, Charles Henry, *Green's End, Woolwich.*

Year of Election.	
1873	LAWSON, ROBERT, LL.D. (*Inspector-General of Army Hospitals*), 20, *Lansdowne-road, Notting-hill, W.*
1873	Lea, Thomas, M.P., 14, *Elvaston-place, Queen's-gate, S.W.*
1883	*Leadam, Isaac Saunders, M.A., 117, *St. George's-square, S W.*
1886	Leathes, Stanley M., *Trinity College, Cambridge.*
1883	Lee, Henry, *Reform Club, S.W.*
1886	*Lee, Sir Joseph C., *Mosley-street, Manchester.*
1880	Lee, Lionel Frederic (*Ceylon Civil Service*), *c/o H. Austin Lee, Foreign Office, Downing-street, S.W.*
1884	Lee, William, *Fairlands, Worplesdon, Guildford, Surrey.*
1879	*Leete, Joseph, 36, *St. Mary-at-hill, E.C., & Eversden, S. Norwood Park.*
1883	Lefeaux, Alfred J., 12, *Clarendon Villas, Charlton, Kent.*
1877	LEFEVRE, THE RIGHT HON. GEORGE SHAW, M.P., M.A., J.P. (*Honorary Vice-President*), 18, *Bryanston-square, W.*
1877	*Leggatt, Daniel, LL.D., 5, *Raymond-buildings, Gray's-inn, W.C.*
1886	Leighton, Sir Baldwyn, Bart., *Loton-park, Shrewsbury, and* 49, *Upper Brook-street, W.*
1880	Leighton, Stanley, M.P., *Sweeney Hall, Oswestry, Salop.*
1885	Lever, Ellis, *Culcheth Hall, Bowdon, Cheshire.*
1851	LEVI, PROFESSOR LEONE, LL.D., F.S.A., 5, *Crown Office-row, Temple, and* 31, *Highbury-grove, N.*
1862	Lewis, Robert, 1, *Bartholomew-lane, E.C.*
1877	Ligertwood, Thomas, M.D., F.R.C.S., *Royal Hospital, Chelsea, S.W.*
1884	*Lines, William Edward, 14, *Hugh-street, Eccleston-square, S.W.*
1878	Lloyd, Thomas, 13, *Angel-court, Throgmorton-street, E.C.*
1879	Lloyd, Wilson, F.R.G.S., *Myvod House, Wood-green, Wednesbury.*
1882	*LONGSTAFF, GEORGE BLUNDELL, M.A., M.B., *Southfield Grange, West Hill-road, Wandsworth, S.W.*
1876	*Lornie, John Guthrie, J.P., *Rosemount, Kirkcaldy (of Birnam and Pitcastle), N.B.*
1834	Lovelace, The Right Honourable the Earl of, F.R.S., *East Horsley Park, Ripley, Surrey.*
1880	Lovely, William, R.N., *Avenue House, Hammersmith, W.*

Year of Election.

1886 *Low, Malcolm, M.P.,
22, *Roland-gardens, S.W.*

1879 Lowndes, William Layton, J.P., D.L.,
27, *Marine-parade, Dover.*

1865 Lubbock, Sir John, Bart., M.P., F.R.S. (*Trustee*),
High Elms, Farnborough, Kent.

1882 Lubbock, Nevile,
65, *Earl's Court-square, S.W.*

1878 Lucas, Thomas, J.P.,
37, *Great George-street, Westminster, S.W.*

1885 Luckie, David Mitchell, *c/o The Agent-General for New Zealand, Westminster Chambers, Victoria-street, S.W.*

1878 Lusk, Sir Andrew, Bart., J.P.,
15, *Sussex-square, Hyde Park, W.*

1885 Mabbs, The Rev. Goodeve,
73, *Godolphin-road, Shepherd's Bush, W.*

1875 Mabson, Richard Rous,
20, *Bucklersbury, E.C.*

1873 *Macandrew, William, J.P.,
Westwood, near Colchester.

1873 McArthur, Alexander, M.P.,
Raleigh Hall, Brixton, S.W.

1873 McArthur, Alderman Sir William, K.C.M.G.,
79, *Holland-park, W.*

1883 McCabe, Hugh B.,
134, *Cheapside, E.C.*

1884 McCabe, William, LL.B, F.I.A.,
22, *King-street West, Toronto, Canada.*

1879 MacCarthy, Rev. Egerton Francis Mead, M.A.,
93, *Hagley-road, Edgbaston, Birmingham.*

1867 M'Clean, Frank,
Rusthall House, Tunbridge Wells.

1873 McDermott, Edward,
Hill Side, Grove-park, Camberwell, S.E.

1872 Macdonell, John,
4, *Elm-court, Temple, E.C.*

1873 *McEwen, Laurence T.,
c/o R. A. McLean, 1, *Queen Victoria-street, E.C.*

1873 McGarel-Hogg, Colonel Sir James, Bart., M.P.,
17, *Grosvenor-gardens, S.W.*

1882 McGuire, Patrick,
57, *Amherst-street, Calcutta.*

Year of Election.

1886 *Mackenzie, Colin, F.R G.S.,
6, *Down-street, Piccadilly, W., and City of London Club.*

1878 McKewan, William,
21, *Lombard-street, E.C.*

1881 Mackey, Rev. Canon Donald John, M.A., Cantab.,
Cleeton St. Mary Vicarage, Cleobury-Mortimer, Salop.

1876 *McLean, Robert Allan, F.R.G.S.,
1, *Queen Victoria-street. E.C.*

1863 *Maclure, John William, M.P., J.P., &c.,
Carlton Club; The Home, Whalley Range, Manchester.

1875 Macpherson, Hugh Martin, F.R.C.S. (*Inspector-General*),
14, *St. James's-square, S.W.*

1883 Macqueen, Robert Davidson Barkly,
20, *Addison-gardens North, W.*

1882 McRosty, Alexander,
13, *King's Arms-yard, E.C.; West Bank, Esher.*

1884 Man, Edward Garnet,
Lamb Building, Temple, E.C.

1883 *Mandlik, The Hon. Rao Saheb Vishvanath Narayan, C.S.I.,
The Hermitage, Khamballa Hill, Bombay.

1884 *Manson, Frederick William,
Wellfield, Muswell Hill, N.

1877 *Maple, John Blundell,
8, *Clarence-terrace, Regent's-park, N.W.*

1875 Marsh, Alfred,
85, *Gracechurch-street, E.C.*

1880 *Marshall, Professor Alfred,
Balliol Croft, Madingley-road, Cambridge.

1874 *Martin, John Biddulph, M.A., F.Z.S. (*Foreign Secretary*),
17, *Hyde-park-gate, S.W.*

1877 Martin, Josiah, F.I.A.,
32, *New Bridge-street, E.C.*

1872 *Martin, Richard Biddulph, M.A.
(*Vice-President and Treasurer*),
68, *Lombard-street, E.C., and Chislehurst.*

1876 *Martin, Thomas Jaques,
84, *Collins-street West, Melbourne, Victoria.*

1879 Martin, Waldyve Alex. Hamilton,
The Upper Hall, Ledbury, Herefordshire.

1886 Mason, Stephen, M.P.,
Glasgow, and 1*a*, *Red Lion-court, Watling-street, E.C.*

1884 Mason, William Arthur,
3*a*, *Colmore-row, Birmingham.*

1875 *Mathers, John Shackleton,
Hanover House, Leeds, Yorkshire.

1883 Mathieson, Frederic Coxhead,
Beechworth, Hampstead, N.W.

1874 May, Frank,
Bank of England, Threadneedle-street, E.C.

Year of Election.	
1882	Medhurst, John Thomas, 126, *Narrow-street, Limehouse, E.*
1883	*Medley, George Webb, 21, *Park-street, Park-lane, W.*
1853	*Meikle, James, F.I.A., 6, *St. Andrew's-square, Edinburgh.*
1880	Menzies, R. Stewart, M.P., *Hallyburton, Coupar-Angus, N.B.*
1884	Merton, Zachary, 14*a*, *Manchester-square, W.*
1881	Meyer, Robert Alexander,
1875	Mildmay, Henry Bingham, J.P., 8, *Bishopsgate-street Within, E.C.*
1873	Millar, William Henry, *Cleveland Lodge, New Park-road, Brixton-hill, S.W.*
1877	Miller, Robert Ferguson, *Ramsden-square, Barrow-in-Furness.*
1879	Miller, William, 67, *Queen Victoria-street, E.C.*
1882	Milnes, Alfred, M.A., 30, *Almeric-road, Wandsworth, S.W.*
1884	Milnes, Charles S., 155, *Fenchurch-street, E.C.*
1874	*Mocatta, Frederick D., F.R.G.S., 9, *Connaught-place, W.*
1878	Moffat, Robert J., *Meadowcroft, Cambridge.*
1884	Mongredien, Augustus, 15, *Park-road-villas, Forest-hill, S.E.*
1879	Moore, Alfred, C.E., *Queen's Chambers*, 2, *Ridgfield, Manchester.*
1874	Moore, Charles Rendall, 46, *Brockley-road, Lewisham-road, S.E.*
1877	Moore, Edward, 3, *Crosby-square, E.C.*
1885	Moore, Harold Edward, 1, *Essex-street, Strand, W.C.*
1878	*Moore, John Byers Gunning, *Loymount, Cookstown, Ireland.*
1880	More, Robert Jasper, M.P., *Linley Hall, Bishopscastle, Salop.*
1883	Morgan, James Henry, 126, *Narrow-street, Limehouse, E.*
1872	Morgan, Octavius Vaughan, M.P., J.P., 13, *Boltons, South Kensington, S.W.*
1881	Morison, Arthur Duff, *Constitutional Club, S.W.*
1874	*Morris, James, M.D., F.R.C.S., 13, *Somers-place, Hyde-park-square, W.*

Year of Election.	
1884	Morris, W. Targett, *Langford House, Buckhurst-hill, Essex.*
1877	Mort, William, 1, *Stanley-crescent, Notting-hill, W.*
1873	Morton, James, 30, *Forsyth-street, Greenock, N.B.*
1885	*Mosley Tonman, *Bangors, Iver, Uxbridge.*
1847	*Mouat, Frederic John, M.D., LL.D., 12, *Durham-villas, Kensington, W.*
1857	*Mount-Temple, The Right Hon. Lord, 15, *Great Stanhope-street, W.*
1886	Mowbray, Robert Gray Cornish, M.P., 1, *Brick-court, Temple, E.C.*
1886	Moxon, Thomas B., *Manchester and County Bank, Limited, Manchester.*
1878	Muir, Hugh Brown, 26, *Old Broad-street, E.C.*
1885	Muir, Robert, 162, *Buchanan-street, Glasgow.*
1883	Muirhead, Henry James, *Oakwood, Farquhar-road, Upper Norwood, S.E.*
1880	Mulhall, Michael George, 19, *Albion-street, Hyde Park, W.*
1878	*Mundella, The Right Hon. Anthony John, M.P., F.R.S., 16, *Elvaston-place, Queens-gate, S.W.*
1878	Murray, Adam, 104, *King-street, Manchester.*
1879	Murray, James Charles, *Calcutta.*
1883	Murray, Kenric Bright, 84, *King William-street, E.C.*
1865	Nasmith, David, 4, *Brick-court, Temple, E.C.*
1878	*Nathan, Henry, *Dashwood House, New Broad-street, E.C.*
1854	Neild, Alfred, *Mayfield Print Works, Manchester.*
1869	Neison, Francis Gustavus Paulus, F.I.A., 93, *Adelaide-road, South Hampstead, N.W.*
1885	Nelson, Edward Montague, J. P., *Hanger Hill House, Ealing, W.*
1877	Nevill, Charles Henry, 11, *Queen Victoria-street, E.C.*
1862	Newbatt, Benjamin, F.I.A., F.R.G.S., 15, *St. James's-square, S.W.*

Year of Election.

1881 Newcome, Frederick N.,

1879 Newdegate, The Right Hon. Charles Newdigate, P.C., D.C.L.
Arbury, Nuneaton, Warwickshire.

1883 Newmarch, Mrs. Elizabeth,
Brook House, Addlestone, Surrey.

1878 Newport, Henry R.,

1878 Newton, John,
Ash Lea, Croydon-road, Penge, S.E

1878 Nicholson, Professor J. S.
University of Edinburgh.

1858 Nightingale, Miss Florence,
10, *South-street, Park-lane, W.*

1877 Nix, Samuel Dyer, F.C.A.,
3, *King-street, Cheapside, E.C.*

1871 *Noble, Benjamin,
North-Eastern Bank, Newcastle-on-Tyne.

1870 Noble, John,
62, *Lady Somerset-road, Highgate-road, N.W.*

1883 Norfolk, J. Ernest Walter,
Bridge House, 181, *Queen Victoria-street, E.C.*

1884 Norman, Charles Loyd,
Oakley, Bromley, Kent.

1877 Norman, General, Sir Henry Wylie, K.C.B.,
King's House, Jamaica.

1878 Northbrook, The Right Hon. the Earl of, G.C.S.I., D.C.L.,
4, *Hamilton-place, Piccadilly, W.*

1878 Notthafft, Theodor,
c/o Discount Bank, St. Petersburg.

1880 Oakeshott, George Alfred,
Secretary's Office, General Post Office, E.C.

1884 Odgers, William Blake, LL.D.,
4, *Elm-court, Temple, E.C.*

1880 *Oelsner, Isidor,
Highfield, Westwood-park, Forest-hill, S.E.

1862 Ogbourne, Charles Henry,
Fairlawn, Bath-road, Reading.

1885 Ogle, William, M.A., M.D., F.R.C.P., &c.,
General Register Office, Somerset House, W.C.

1884 Ogston, George Henry,
28, *Charles-street, St. James's, S.W.*

1885 *Oldham, John,
River Plate Telegraph Company, Montevideo.

1884 Oldroyd, Mark,
Hyrstlands, Dewsbury, Yorkshire.

Year of Election.	
1878	Oppenheim, Henry, 16, *Bruton-street, Bond-street, W.*
1876	Orange, William, C.B., M.D., *Broadmoor, Wokingham, Berks.*
1877	Ormond, Richard, 24, *Grainger-street West, Newcastle-on-Tyne.*
1874	Overall, William Henry, F.S.A., *Librarian, Guildhall, E.C. (Representing the Library Committee of the Corporation of the City of London.)*
1886	Pain, James, *Borough, Micheldever, Hants.*
1866	*Palgrave, Robert Harry Inglis, J.P., F.R.S., *Belton, Great Yarmouth, Norfolk.*
1879	Palmer. George, 58, *Grosvenor-street, W.; and The Acacias, Reading.*
1884	Palmer, J. T., 8, *Wine Office-court, Fleet-street, E.C.*
1878	Park, David Francis. C.A., F.F.A., A.I.A., 17, *Change alley, Cornhill, E.C.*
1878	Parry, Thomas, *Grafton-place, Ashton-under-Lyne.*
1879	Partridge, Henry Francis, L.D.S., &c., *Sussex House, Sussex-place, South Kensington, S.W.*
1883	Paterson, John, 1, *Walbrook, E.C.*
1877	Paul, Henry Moncreiff, 12, *Lansdowne-crescent, Notting Hill, W.*
1878	Paulin, David, 44, *Moray-place, Edinburgh.*
1879	Payn, Howard, 30, *Hyde-park-place, W.*
1884	Payne, Frederick,
1884	*Peace, Walter, 21, *Finsbury-circus, E.C.*
1876	Pearson, Edwin James, *Athenæum Club, S.W.*
1857	*Pearson, Professor C. H., *c/o Sir John Pearson*, Q.C., 75, *Onslow-square, S.W.*
1880	*Pease, Sir Joseph Whitwell, Bart., M.P., 24, *Kensington-palace-gardens, W.*
1884	Peek, Francis, 4, *Fenchurch-street, E.C.*
1876	*Peek, Sir Henry William, Bart., *Wimbledon House, S.W.*

Year of Election.

1878 Pellereau, Hon. Mr. Justice Etienne,
Singapore, Straits Settlements.

1886 Pembroke, The Right Hon. the Earl of,
Wilton House, Salisbury.

1880 Pender, John,
18, *Arlington-street, S.W., and* 50, *Old Broad-street, E.C.*

1871 Pennington, Frederick,
17, *Hyde Park-terrace, W.*

1874 Pepys, The Hon. George,
United University Club, Suffolk-street, S.W.

1881 Perring, R. B.,
Queen's Chambers, John Dalton-street, Manchester.

1883 Petheram, Frederick William, F.C.A.,
2, *Lombard-court, E.C.*

1886 Peto, Henry, M.A.,
Fleet House, Weymouth.

1886 Phelps, The Rev. Lancelot Ridley, M.A.,
Oriel College, Oxford.

1874 Phené, John Samuel, LL.D., F.S.A.,
5, *Carlton-terrace, Oakley-street, S.W.*

1879 Philips, Herbert,
35, *Church-street, Manchester.*

1877 Phillipps, Henry Matthews,
41, *Seething-lane, E.C.*

1859 Phillips, Henry James,
4, *Ludgate-hill, E.C.*

1883 Phillips, John Orwell,
Horseferry-road, Westminster, S.W.

1878 Phipps, Pickering,
6, *Collingtree Grange, Northampton.*

1871 *Pickering, John, F.R.G.S., F.S.A.,
86, *Thicket-road, Anerley, S.E.*

1885 Pierrard, Paul,
12, *Moorgate-street, E.C.*

1878 *Pim, Joseph Todhunter,
Greenbank, Monkstown, County Dublin.

1838 *Pinckard, George Henry, J.P., F.I.A.,
12, *Grove-road, St. John's-wood, N.W.*

1886 Pink, J. Francis,
62, *Chandos-street, Strand, W.C.*

1885 Pitman, Walter Hayward,
30, *Newgate-street, E.C.*

1879 Pixley, Francis William,
23, *Linden-gardens, W.*

1881 Planck, Charles, M.R.C.S. (*Deputy Surgeon-General*),
Allahabad, India.

1883 Platt, James,
Rookwood, Hampstead, N.W.

Year of Election.	
1861	Plowden, Sir Wm. Chicele, K.C.S.I., M.P., 12, *Queen's Gate-place, S.W.; Wyke Hall, Gillingham, Dorset.*
1869	Pochin, Henry Davis, J.P., *Bodnant Hall, Eglwysbach, R.S.O. Denbighshire.*
1884	Polson, John, *Paisley, N.B.*
1883	Pope, William Agnew, 113, *Cannon-street, E.C.*
1885	Popplewell, William Willott, *Victoria Chambers, Southampton-buildings, W.C.*
1879	*Powell, Francis Sharp, M.P. (*Horton Old Hall, Bradford*), 1, *Cambridge-square, Hyde Park, W.*
1871	Power, Edward, 16, *Southwell-gardens, South Kensington, S.W.*
1884	Power, John Danvers, 3, *Westminster-chambers, Victoria-street, S.W.*
1883	Poynting, Professor J. H., M.A., *Brentwood, Hagley-road, Edgbaston, Birmingham.*
1877	*Prance, Reginald Heber, *Frognal, Hampstead, N.W.*
1877	Praschkauer, Maximilian, 10, *Priory-grove, Boltons, S.W.*
1886	Pratt, Benjamin, 82, *Wood-street, E.C.*
1867	*Pratt, Robert Lindsay, 80, *Bondgate, Darlington*
1877	Price-Williams, Richard, M. Inst. C.E., 38, *Parliament-street, S.W.*
1884	*Proctor, William, 89, *Corporation-street, Manchester.*
1886	Provand, Andrew Dryburgh, M.P., *Lloyd's House, Manchester.*
1871	Puleston, John Henry, M.P., 2, *Bank-buildings, Princes-street, E.C.*
1886	Pulley, Joseph, 90, *Piccadilly, W.*
1837	*Purdy, Frederick, 35, *Victoria-road, Kensington, W.*
1885	Purvis, Gilbert, *Ingle Neuk, Brackley-road, Beckenham, Kent.*
1879	Quail, Jesse, "*Northern Daily Telegraph*," *Blackburn.*
1874	Quain, Richard, M.D., F.R.S., F.R.C.P., 67, *Harley-street, W.*
1883	Quoadt, Ferdinand, *Corn Exchange Chambers, Seething-lane, E.C.*

Year of Election.	
1883	Rabbidge, Richard, F.C.A., 32, *Poultry, E.C.*
1872	*Rabino, Joseph, (*c/o Crédit Lyonnais*), *Alexandria, Egypt.*
1858	*Radstock, The Right Honourable Lord, *East Sheen, Mortlake, S.W.*
1885	Rae, John, 56, *Ludgate-hill, E.C.*
1877	Raikes, Major George Alfred, F.S.A., F.R. His. Soc., 63, *Belsize-park, Hampstead, N.W.*
1864	*Raleigh, Samuel, 9, *St. Andrew-square, Edinburgh.*
1860	Ramsay, Alexander Gillespie, F.I.A., *Canada Life Assurance Co., Hamilton, Canada West.*
1885	Randell, James S., *Corsham, Wilts.*
1879	Ranken, William Bayne, 99, *Eaton-square, S.W.*
1880	Rankin, James, M.P., 35, *Ennismore-gardens, Prince's Gate, S.W.*
1881	Raper, Robert George, *Chichester.*
1884	Raphael, Alfred, 87, *Alexandra-road, N.W.*
1859	Rathbone, P. H., *Greenbank Cottage, Liverpool.*
1878	Rathbone, William, M.P., 18, *Prince's-gardens, Prince's-gate, S.W.*
1884	*Ravenscroft, Francis, *Birkbeck Bank, Chancery-lane, W.C.*
1874	*Ravenstein, Ernest George, F.R.G.S., 29, *Lambert-road, Brixton Rise, S.W.*
1886	Rawlins, Frederick, *Brisbane, Queensland.*
1877	*Rawlins, Thomas, 45, *King William-street, E.C.*
1835	Rawson, Sir Rawson W., K.C.M.G., C.B. (*Honorary Vice-President*), 68, *Cornwall-gardens, Queen's-gate, S.W.*
1880	Readdy, George, 13, *Harrington-street, Liverpool.*
1875	Record, John, 23, *Kenninghall-road, Clapton, E.*
1886	Rhens, Robert, 57, *Dalston-lane, E.*
1879	Rhodes, John George, *Oakdene, Beckenham, Kent.*
1884	Richards, E. W., C.E. *Middlesboro-on-Tees.*

Year of Election.

1884 Richardson, T. H.,
Brynteg, Middlesbrough.

1873 Ripon, The Most Hon. the Marquess of, K.G., F.R.S, &c.,
1, *Carlton-gardens, S.W.*

1882 Roberts, Edward, F.R.A.S., (*Nautical Almanac Office*),
3, *Verulam-buildings, Gray's Inn, W.C.*

1885 Robertson, Thomas Stewart,
Collins-street West, Melbourne, Victoria.

1885 Rodger, Adam Kier,
81, *Renfield-street, Glasgow.*

1886 Roechling, Herman A., A.M. Inst. C.E.,
13, *Highfield-street, Leicester.*

1880 *Ronald, Byron L.,
14, *Upper Phillimore-gardens, W.*

1885 Roper, Alderman William,
Southfield, Lancaster.

1883 Roscoe, Henry William Kent,
2, *Sheffield-terrace, Kensington, W.*

1873 *Rosebery, The Right Hon. the Earl of,
Lansdowne House, Berkeley-square, W.

1880 Roth, Henry Ling,
63, *Great George-street, Leeds.*

1865 Ruck, George Thomas,
The Hawthorns, Dorville-road, Lee, S.E.

1879 Runtz, John,
Linton Lodge, Lordship-road, Stoke Newington, N.

1886 Russell, Arthur B., A.C.A.,
20, *Stanley-gardens, Hampstead, N.W.*

1878 Russell, Richard F.,
8, *John-street, Adelphi, W.C.*

1873 Rutherford-Elliot, J. G.,
5, *Spence-street, Newington, Edinburgh.*

1884 Ryan, Gerald Hemmington, F.I.A.
14, *Leadenhall-street, E.C.*

1873 *Salisbury, The Most Hon. the Marquess of, P.C., F.R.S.,
20, *Arlington-street, W.*

1881 Salmon, James,
Melford Lodge, Wanstead, Essex.

1875 *Salomons, Sir David Lionel, Bart., J.P.,
Broom-hill, Tunbridge Wells.

1876 Salt, Thomas, M.P.,
Weeping Cross, Stafford.

1868 Samuelson, Sir Bernard, Bart., M.P., F.R.S.,
56, *Prince's-gate, Hyde-park, S.W.*

1860 Sargant, William Lucas,
Rotton-park-road, Birmingham.

Year of Election.	
1886	Sauerbeck, Augustus, 4, *Moorgate-street-buildings, E.C.*
1877	Saunders, Charles Edward, M.D., 21, *Lower Seymour-street, Portman-square, W.*
1874	Saunders, Francis,
1852	Saunders, James Ebenezer, jun., F.G.S. 9, *Finsbury-circus, E.C.*
1879	Saunders, William, *Mount View, Streatham, S.W.*
1883	Schidrowitz, Samuel, 102, *Oxford-gardens, Notting Hill, W.*
1877	Schiff, Charles, 22, *Lowndes-square, S.W.*
1877	Schneidau, Charles John, 6, *Westwick-gardens, West Kensington-park, W.*
1883	*Schwann, John Frederick, *Oakfield, Wimbledon, and* 6, *Moorgate-street, E.C.*
1883	Sclanders, Alexander, 10, *Austin Friars, E.C.*
1878	Scott, Arthur J.,
1885	Scott, James Henry, 12, *Waterloo-place, S.W.*
1885	Scott, John D., M.A., *St. John's College, Cambridge.*
1880	*Seeley, Charles, jun., *Sherwood Lodge, Nottingham.*
1883	Seligman, Isaac, *Lincoln House, Clapham Park, S.W.*
1886	Selwyn, Captain Charles W., M.P., 1, *Upper Brook-street, W.*
1886	Seyd, Ernest J. F. 38, *Lombard-street, E.C.*
1873	Seyd, Richard, 38, *Lombard-street, E.C.*
1886	Shaw, Frederick Du Frocq, 15, *High-street, Guernsey.*
1886	Shaw-Stewart, Michael Hugh, M.P., D.L., 7, *Charles-street, Berkeley-square, W.*
1879	Shepheard, Wallwyn Poyer Burnett, M.A., 24, *Old Buildings, Lincoln's Inn, W.C.*
1885	Sherwin, Joseph Henry, 16, *Whitehall-place, S.W.*
1871	Sidgwick, Prof. Henry, M.A. *Trinity College, Cambridge.*
1886	Silver, S. W., 3, *York-gate, Regent's Park, N.W.*
1878	Simmonds, G. Harvey, 1, *Whitehall, S.W.*

Year of Election.

1885 Simner, William Lewis,
Local Government Board, Whitehall, S.W.

1850 Singer, Charles Douglas,
53, *The Common, Upper Clapton, E.*

1886 Sitwell, Sir George Reresby, Bart., J.P.,
30, *Bury-street, St. James's, S.W.*

1882 Skinner, Charles Weeding,
Hill Crest, Theydon Bois, Essex.

1884 Skliros, George Eustace, M.A., F.R.G.S., &c.,
82, *Mortimer-street, Cavendish-square, W.*

1881 Skrine, Francis Henry,
United Service Club, Calcutta, India.

1883 Sly, Richard Stevens, F.R.G.S.,
Fern Villa, Queen's-road, New Cross Gate, S.E.

1869 Smee, Alfred Hutcheson, M.R.C.S.,
The Grange, Wallington, Surrey.

1886 Smith, Arthur Manley,
29, *Lincoln's Inn-fields, W.C.*

1878 *Smith, Charles, M.R.I.A., F.G.S., Assoc. Inst. C.E.,
Barrow-in-Furness.

1883 *Smith, The Hon. Donald A.,
1157, *Dorchester-street, Montreal, Canada.*

1871 Smith, E. Cozens,
1, *Old Broad-street, E.C.*

1883 Smith, E. Woodley, A.C.A.,
28, *Budge-row, Cannon-street, E.C.*

1878 *Smith, George, LL.D., C.I.E.,
Serampore House, Napier-road, Edinburgh.

1877 Smith, Howard S.,
37, *Bennett's Hill, Birmingham.*

1878 *Smith, James,
South Indian Railway, Trichinopoly, Madras Presidency.

1877 Smith, John,
8, *Old Jewry, E.C.*

1879 Smith, John Fisher,
76, *Cheapside, E.C.*

1883 Smith, Samuel, M.P.,
West Hill Side, Clapham Common, S.W.

1880 Smith, Thomas Sherwood,
Firgrove, Keynsham, near Bristol.

1867 *Smith, The Right Honourable William Henry, M.P.,
3, *Grosvenor-place, S.W.*

1884 Solomon, The Hon. Michael, (*Jamaica*),
c/o Joseph Bravo and Co., 48, *St. Mary Axe, E.C.*

1855 Sowray, John Russell,
Office of Woods, 2, *Whitehall-place, S.W.*

1877 Spalding, Samuel, J.P.,
South Darenth, Kent.

1884 Spark, C. W.,
The Chantry, Alford, Lincolnshire.

Year of Election.	
1867	*Spencer, Robert James, *High-street, Portsmouth.*
1881	Spice, Robert Paulson, C.E., 21, *Parliament-street, Westminster, S.W.*
1883	Spicer, Albert, *Woodford, Essex, and* 50, *Upper Thames-street, E.C.*
1856	*Sprague, Thomas Bond, M.A., F.I.A., 26, *St. Andrew-square, Edinburgh.*
1872	Spriggs, Joseph, *Dale Cottage, Foxton, near Market Harbro'.*
1882	Stack, Thos. Neville, 3, *Church-lane, College-green, Dublin.*
1856	*Stainton, Henry Tibbats, *Mountsfield, Lewisham, S.E.*
1885	Standfield, John, 44, *Lillieshall-road, Clapham, S.W.*
1877	Staples, Sir Nathaniel Alexander, Bart., *Lissan, Cookstown, Tyrone, Ireland.*
1880	Stark, James, 17, *King's Arms-yard. E.C.*
1880	Stephens, William Davies, J.P., 4, *Abbotsford-terrace, Newcastle-on-Tyne.*
1882	*Stern, Edward De, 11, *Princes-gate, S.W.*
1885	Stevens, Marshall, *Highfield House, Urmston, near Manchester.*
1883	Stone, Frank, *Forest Drive, Manor Park, Essex.*
1877	Stone, William Alfred, 90, *Cannon-street, E.C.; Hayton, Bramley Hill, Croydon.*
1886	Storey, Alderman Samuel, M.P., *Holm Lea, Sunderland.*
1855	*Stott, John, F.I.A., 7, *Buckland-crescent, Belsize-park, N.W.*
1865	Strachan, Thomas Young, F.I.A., 18, *Grainger-street West, Newcastle-on-Tyne.*
1872	Strachey, General Richard, R.E., C.S.I., F.R.S., *India Office, Westminster, S.W.*
1880	Strutt, Hon. Frederick, *Milford House, near Derby.*
1884	*Sugden, Richard, *The Farre Close, Brighouse, Yorkshire.*
1880	*Summers, William, M.P. (*Sunnyside, Ashton-under-Lyne*). *Reform Club, Pall Mall, S.W.*
1884	Sutherland, Thomas, M.P., 167, *Cromwell-road, South Kensington, S.W.*
1884	Sweeting, Richard Deane Roker, M.R.C.S., B.A., &c., *Western District Hospital, Seagrave-road, Fulham, S.W.*
1881	Sykes, George Samuel, 1, *Grant's Lane, Calcutta, India.*

Year of Election.

1859 *Tait, Patrick Macnaghten, F.R.G.S.,
Hardwick House, Eastbourne, and Oriental Club, W.

1885 Tanner, Russell R., B.A.,
Seathwaite Cottage, Frome.

1884 Tarbet, Thomas William,
33, *Warwick-street, Regent-street, W.*

1880 Taylor, George,
17, *Abchurch-lane, E.C.*

1883 Taylor, Harry,
40, *Albert Hall-mansions, Kensington, S.W.*

1884 Tempany, Thomas William, F.R.H.S.,
25, *Bedford-row, W.C.*

1882 Temperley, Joseph,
1, *Cail's-buildings, Newcastle-on-Tyne.*

1880 Temple, Sir Richard, Bart., G.C.S.I., M.P., D.C.L., &c.,
Carlton Club, Pall Mall, S.W.

1885 Theobald, Henry,
1, *Deanery-terrace, The Green, Stratford, Essex.*

1879 Thomas, W. Cave,
8, *Fitzroy-street, Fitzroy-square, W.*

1878 Thompson, Alfred Boyle, F.R.C.P. Edin.,
18, *Serjeants'-inn, Temple, E.C.*

1878 Thompson, Captain C. Halford (late R.A.),
Claremont, Exeter.

1864 *Thompson, Henry Yates,
26*a*, *Bryanston-square, W.*

1868 Thomson, James,
35, *Nicholas-lane, E.C.*

1871 Thomson, Thomas D.,
57, *Moorgate-street, E.C.*

1883 Thorburn, Alexander Brown,
17, *Marloes-road, Kensington, W.*

1882 Tinker, James,
80, *Cromwell-road, S.W.*

1879 Tipping, William,
Oakfield House, Ashton-under-Lyne.

1855 Tomline, Colonel George,
1, *Carlton House-terrace, S.W.*

1868 *Treatt, Frank Burford,
Immigration Office, Sydney, New South Wales.

1868 Tritton, Joseph Herbert,
54, *Lombard-street, E.C.*

1883 Tronson, Norman Percy Mills,

1880 Tupp, Alfred Cotterill (*Bengal Civil Service*),
c/o Messrs. King, King, and Co., Bombay.

1878 Turnbull, Alexander,
118, *Belsize-park-gardens, N.W.*

1867 Turner, Thomas,
Holywell House, Weston-super-Mare.

Year of Election.

1885 Turner, William,
Board of Trade, Cardiff.

1841 Tyndall, William Henry,
Morlands, Oxford-road, Redhill.

1873 Underdown, Robert George,
Northleigh, Whalley Range, Manchester.

1876 *Urlin, Richard Denny,
22, *Stafford-terrace, Phillimore-gardens, W.*

1842 Valpy, Richard,
43, *Prince's-gate, S.W.*

1868 Vanderbyl, Philip,
51, *Porchester-terrace, W.*

1880 Van de Linde, Gérard, F.C.A.,
12, *Laurence Pountney-lane, Cannon-street, E.C.*

1883 Van Essen, Jacob,
56, *Threadneedle-street, E.C.*

1884 Veevers, Richard,
Woningworth, Fulwood-park, Preston.

1886 Vernon, The Right Hon. Lord,
Sudbury Hall, Derby.

1874 Vian, William John,
64, *Cornhill, E.C.*

1876 Vigers, Robert,
4, *Frederick's-place, Old Jewry, E.C.*

1885 Vincent, Frederick James, A.I.A.,
23, *Harvest-road, Holloway, N.*

1877 Vine, Sir John Richard Somers,
96, *London Wall, E.C.*

1883 Wahab, Edward,
14, *St. Mary Axe, E.C.*

1873 Wakeford, Henry,
Home Office, Whitehall, S.W.

1883 Walford, John Edward, C.C.,
Knightrider-street, E.C.

1882 Wallen, Robert, J.P.,
Harlech, Hawthorn, near Melbourne, Victoria.

1868 Wallis, Charles James,
93, *Brecknock-road, Camden-road, N.*

Year of Election	
1880	Wallis, E. White, F.M.S., 49, *Clifton-hill, St. John's Wood, N.W.*
1876	Walter, Arthur Fraser, 15, *Queen's Gate-terrace, S.W.*
1850	Walter, John, 40, *Upper Grosvenor-street, W.*
1879	Wansey, Arthur H., *Sambourne, Stoke Bishop, Bristol.*
1873	Waring, Charles, 2, *Grosvenor-square, W.*
1886	Waters, Alfred Charles, *General Register Office, Somerset House, Strand, W.C.*
1885	*Watt, William, 27, *North Albert-street, Aberdeen.*
1865	Waterhouse, Edwin, B.A., 44, *Gresham-street, E.C.*
1873	Watson, John Forbes, M.A., M.D., LL.D. 16, *Lullington-road, Anerley, S.E.*
1883	Watson, T. Wilkinson, 183, *West George-street, Glasgow.*
1882	Watson, Walter, 52, *Balmes-road, Southgate-road, N.*
1883	Watson, William Livingstone, 7, *Wetherby-gardens, South Kensington, S.W.*
1865	Webster, Alphonsus,
1873	Webster, James Hume, 14, *Chapel-street, Park-lane, W.*
1873	*Welby, Sir Reginald Earle, K.C.B., *The Treasury, Whitehall, S.W.*
1886	Weller, Ebenezer Thomas, 71, *Eastcheap, E.C.*
1873	Wells, W. Lewis, 50, *Old Broad-street, E.C.*
1855	Welton, Thomas Abercrombie, *Rectory Grove House, Clapham, S.W.*
1879	Wenley, James Adams, *Bank of Scotland, Bank-street, Edinburgh.*
1876	Westgarth, William, 8, *Finch-lane, E.C.*
1886	Westhead, Thomas, *Castletown, Stafford.*
1879	*Westlake, John, Q.C., LL.D., *The River House*, 3, *Chelsea Embankment, S.W.*
1882	*Whadcoat, John Henry, *Crown Buildings, Old Broad-street, E.C.*
1883	*Whadcoat, William Edward, 112, *Grosvenor-road, Highbury New-park, N.*
1878	Wharton, James, *Edgehill, Netherall-terrace, Fitz-John's-avenue, N.W.*

Year of Election.	
1884	Whibley, Frederick George, *Albion Chambers, Bristol.*
1859	Whitbread, Samuel, M.P., 10, *Ennismore-gardens, Princes-gate, S.W.*
1876	Whitcher, John, Jr., F.I.A., 81, *King William-street, E.C.*
1863	White, Leedham, 25, *Cranley-gardens, South Kensington, S.W.*
1871	White, William, 70, *Lombard-street, E.C.*
1873	Whitehead, Jeffery, 39, *Throgmorton-street, E.C.*
1884	Whiteley, William, *Westbourne-grove, Bayswater, W.*
1879	*Whitwill, Mark, J.P., *Redland House, Durdham-park, Bristol.*
1884	Wightman, Charles, 151, *Fenchurch-street, E.C.*
1875	Wilkinson, Thomas Read, *Manchester and Salford Bank, Manchester.*
1860	Willans, John Wrigley. *The Woodlands, Kirkstall, Leeds.*
1879	Williams, Edward, *Cleveland Lodge, Middlesborough.*
1864	Williams, Frederick Bessant, 46, *Leicester-square, W.C.*
1870	Williams, Henry Reader, 6, *Lime-street, E.C.; and Oak Lodge, Highgate, N.*
1884	Wilson, James, *Lahore, India.*
1886	Wilson, Robert, *London Central Club, Bridewell-place, E.C.*
1874	*Wilson, Robert Porter, 5, *Cumberland-terrace, Regent's-park, N.W.*
1872	*Winch, William R., *North Mymms Park, Hatfield, Herts.*
1884	Wishart, G. D., 8, *Livingstone-avenue, Sefton-park, Liverpool.*
1885	Wolff, Captain M. Paul, 1, *Cambridge-road, Brighton.*
1868	Wood, H. W. I. (*Calcutta*), *c/o Messrs. Richardson*, 13, *Pall Mall, S.W.*
1883	Wood, Thomas Percival, 27, *Leadenhall-street, E.C.*
1877	Woodrow, Thomas John, *Sisland Cottage, Wanstead.*
1838	Woolhouse, Wesley Stoker Barker, F.R.A.S., *Alwyne Lodge, Alwyne-road, Canonbury, N.*
1878	Worsfold, Rev. John Napper, M.A., *Haddlesey Rectory, near Selby, Yorkshire.*

Year of Election	
1880	Wren, Walter, 7, *Powis-square, W.*
1883	Wright, Bryce McMurdo, *Hesket House*, 54, *Guilford-street, Russell-square, W.C.*
1838	*Wyatt-Edgell, Rev. Edgell, 40, *Grosvenor-street, W.; Stanford Hall, Rugby.*
1884	Wyllie, Colin Campbell, 34, *Clement-lane, E C., and Walden, Chislehurst.*
1879	Yeats, John, LL.D., 7, *Beaufort-square, Chepstow.*
1886	Yerburgh, Robert Armstrong, M.P., 22, *Queen-street, Mayfair, W.*
1877	*Youll, John Gibson, *Jesmond-road, Newcastle-on-Tyne.*
1882	Young, E. M., 13, *Leadenhall-street, E.C.*

*** *The Executive Committee request that any inaccuracy in the foregoing list may be pointed out to the* Assistant Secretary *and that all changes of address may be notified to him, so that delay in forwarding communications and the publications of the Society may be avoided.*

HONORARY MEMBERS.

HIS ROYAL HIGHNESS THE PRINCE OF WALES, K.G.,

Honorary President.

EUROPE.

Austria and Hungary.

Year of Election.		
1874.	**Budapest**.....	M. CHARLES KELETI, Aulic Councillor; Chief of the Royal Hungarian Statistical Bureau. Doctor of Civil Law; Knight of the Austrian Order of Leopold; Commander of the Russian Order of St. Stanislaus, and of the Portuguese Order of la Villa Viçosa; Associate of the Statistical Society of Paris.
1877.	**Vienna**.....	DR. HUGH FRANCIS BRACHELLI, Aulic Councillor, Chief of the Statistical Department, Ministry of Commerce; Professor at the Technical High School in Vienna; President of the Permanent Commission for Commercial Values. Commander of the Russian Orders of St. Anna and St. Stanislaus, of the Luxembourg Order of the Oak-Crown; Officer of the Order of the Italian Crown; Knight of the Order of the House of Saxe-Ernestine; Officer of Public Instruction of France, &c., &c.
1854.	,, ...	S. E, M. CHARLES BARON DE CZOERNIG, Privy Councillor (actuel) of His Imperial and Royal Majesty; late President of the Imperial and Royal Central Commission of Statistics at Vienna; Associate of the Statistical Society of Paris.
1879.	,, ...	PROFESSOR FR. XAVIER von NEUMANN-SPALLART, D.C.L., Aulic Councillor; Professor of Political Economy and Statistics, Agricultural College, University of Vienna; Member of the Imperial Statistical Commission; Honorary Member of the Statistical Society of Paris, and of the Cobden Club, London.
1877.	,, ...	M. MAX WIRTH, late Chief of the Federal Statistical Bureau of Switzerland.

Belgium.

Year of Election.		
1879.	**Brussels**	DR. EUGÈNE JANSSENS, Doctor of Medicine, &c.; Chief Inspector of the Board of Health in the City of Brussels. Member of the Royal Academy of Medicine, of the Central Statistical Commission, of the Superior Council of Health, and of the Local Medical Commission, Secretary of the Local Commission of Statistics; Knight of the Order of Leopold, and of the Order of St. Maurice and St. Lazare, &c.; Associate of the Statistical Society of Paris.

Denmark.

1878.	**Copenhagen** ...	PROFESSOR VIGAND ANDREAS FALBE-HANSEN, Professor of the University of Copenhagen; Member of the "Folkething."
1852.	,, ..	DR. PETER ANTON SCHLEISNER, Doctor of Medicine, State Councillor; Knight of the Order of Dannebroge, and the Swedish Order of "Nordstjerne"; Officer of Health of the City of Copenhagen; Member of the Royal General Board of Health for Denmark, Corresponding Member of the Medical Society in Stockholm and Christiania, of the "Société de Médecine publique et d'Hygiène professionelle" in Paris, of the "Société d'Hygiène publique de Bordeaux," and of the "Société royale de Médecine publique de Belgique," &c.

France.

1880.	**Paris**.....	DR. JACQUES BERTILLON, Doctor of Medicine, Chief of the Statistical Works of the City of Paris; Director of the "Annals of International Demography;" Professor ("suppléant") at the School of Anthropology; Member of the Statistical Society of Paris.
1856.	,, ...	M. MAURICE BLOCK, Member of the Institute of France (Academy of Moral and Political Sciences); Knight of the Legion of Honour, and of Orders of Sweden, Russia, Prussia, Bavaria, Austria-Hungary, Greece, Italy, Spain, Portugal; Member of the Statistical Society of Paris.
1879.	,, ...	DR. ARTHUR CHERVIN, Director of the Institution of Stammerers of Paris; Doctor of Medicine and Surgery; Member of the Permanent Statistical Commission of the City of Paris; Founder of the "Annals of International Demography," &c.; Member of the Statistical Society of Paris.
1878.	,, ...	M. MAXIMIN DELOCHE, Member of the Institute of France; Honorary Director of the General Statistics of France; Commander of the Legion of Honour; Officer of Public Instruction; Commander of the Imperial and Royal Order of Francis Joseph of Austria-Hungary; member of several learned societies.

Year of Election.		
1870.	**Paris**	M. CLÉMENT JUGLAR, Past President of the Statistical Society of Paris; Vice-President of the Society of Political Economy of Paris.
1860.	„	M. PIERRE ÉMILE LEVASSEUR, Member of the Institute of France; Professor at the College of France and of the Conservatory of Arts and Sciences; Past President of the Statistical Society of Paris; Vice-President of the French Temperance Society and of the Society of Political Economy of Paris.
1860.	„	M. MARIE LOUIS PIERRE FELIX ESQUIROU DE PARIEU, Senator; Member of the Institute of France; Grand Cross of the Legion of Honour, and Companion of several foreign orders.
1876.	„	THE PRESIDENT (for the time being) OF THE STATISTICAL SOCIETY OF PARIS.
1880.	„	THE HONORABLE JEAN BAPTISTE LÉON SAY, Senator; Member of the Institute of France; Past President of the Statistical Society of Paris, of the National Society of Horticulture, of the National Society of Agriculture, and of the Society of Political Economy of Paris.

Germany.

1860.	**Bavaria**	DR. GEORGE KARL LEOPOLD SEUFFERT, Knight of the Order of St. Michael; formerly Chief Inspector and Director of the Royal Custom House at Simbach.
1878.	**Berlin**	DR. CHARLES BECKER, Director of the Imperial Statistical Department of the German Empire; "Geheimer Ober-Regierungsrath;" Associate of the Statistical Society of Paris.
1854.	„	DR. ERNEST ENGEL, formerly Director of the Royal Statistical Bureau of Prussia; Associate of the Statistical Society of Paris.
1876.	**Frankfort**	THE PRESIDENT (for the time being) OF THE GEOGRAPHICAL AND STATISTICAL SOCIETY OF FRANKFORT.
1877.	**Strasburgh**	DR. GEORGE MAYR, Under Secretary of State in the Imperial Ministry for Alsace-Lorraine; formerly Director of the Royal Bureau of Statistics; Associate of the Statistical Society of Paris.
1871.	**Stuttgardt**	SIR HENRY PAGE-TURNER BARRON, Bart., C.M.G., British Minister Resident at Stuttgardt.

Great Britain and Ireland.

1876.	**Dublin**	THE PRESIDENT (for the time being) OF THE STATISTICAL AND SOCIAL INQUIRY SOCIETY OF IRELAND.
1876.	**Manchester** ..	THE PRESIDENT (for the time being) OF THE MANCHESTER STATISTICAL SOCIETY.

Italy.

Year of Election.		
1879.	**Genoa**	SIGNOR GEROLAMO BOCCARDO, Senator; Professor of Economy at the Royal Superior Naval School, and of Statistics at the Royal University of Genoa; Commander of the Order of St. Maurice and St. Lazare; Grand Officer of the Crown of Italy; Knight of the Order of Civil Merit of Savoy, &c.
1880.	**Pavia**	DR. LUIGI COSSA, LL.D., Professor of Political Economy at the University of Pavia; Honorary Member of the Cobden Club.
1874.	**Rome**	SIGNOR LUIGI BODIO, Director-general of Statistics of the Kingdom; Doctor of Laws; Professor of the University of Rome; Associate of the Statistical Society of Paris.
1865.	,, ...	REV. CESARE CONTINI, Priest and Beneficiato Vaticano; Member of the Statistical Society of Pavia; of the Hygienic Society of Italy; and of the Hygienic Society of Paris.
1877.	,, ...	S. E. CESARE CORRENTI, Deputy to Parliament, Vice-President of the Central Council of Statistics; late Minister of Public Instruction.
1880.	,, ...	PROFESSOR ANGELO MESSEDAGLIA, Deputy to Parliament; Professor of the University of Rome; Commander.
1868.	,, ...	THE MARQUIS ERMENEGILDO DEI CINQUE QUINTILI, Advocate; General Secretary of the Hospitals Commission of Rome.
1854.	**Turin**.....	SIGNOR GIOVANNI FLECHIA, Professor of Comparative history of the classical and neolatin languages, and of Sanscrit at the University of Turin; Commander; Member of the Royal Academy of Sciences of Turin and of the Lincei; also of the Order of Civil Merit of Savoy.
1845.	**Venice**.....	SIGNOR FRANCESCO FERRARA, Professor and Director of the Superior School of Commerce at Venice; late Deputy to Parliament; late Minister of Finance.

Russia.

1873.	**St. Petersburg**	HIS EXCELLENCY M. PETER SEMENOFF (SEMENOW), Senator; Privy Councillor to His Imperial Majesty; President of the Statistical Council; President of the Imperial Geographical Society; Honorary Member of the Academy of Sciences in St. Petersburg; Associate of the Statistical Society of Paris.
1877.	,,	M. A. VESSÉLOVSKY, Secretary of the Scientific Committee of the Imperial Ministry of Finance.

Spain.

Year of Election.		
1845.	**Madrid**.....	EXMO SEÑOR D. JOSÉ MAGÁZ Y JAYME, Grand Cross of Isabella Catolica; Commander of the Order of Carlos 3º; Advocate, and Member of the Council of State; Ex-Deputy of the Cortes; Ex-Senator; Ex-Director-General of Treasury; Ex-Under-Secretary of the Ministry of Finance, &c.
1886.	,, ...	EXMO SEÑOR D. CARLOS IBAÑEZ É IBAÑEZ DE IBERO, General of the Spanish Army; Member of the Royal Academy of Sciences of Madrid; Corresponding Member of the Institute of France (Academy of Sciences); Associate of the Royal Academy of Brussels; President of the International Geodesic Association; President of the International Committee of Weights and Measures, and of the Permanent Commission of Weights and Measures of Spain; Director-General of the Geographical and Statistical Institute of Spain; &c., &c.

Sweden and Norway.

1858.	**Christiania**....	PROFESSOR THORKIL HALVORSEN ASCHEHOUG, Professor of Law and Political Economy at the University of Christiania; Chairman of the Board of Directors of the Royal Norwegian Hypothekbank; Member of the Institute of International Law, and of the Academies of Christiania, Trondhjem and Upsala, and of the Royal Historical Society of Denmark; Commander of the Norwegian Order of St. Olave; Member of the Swedish Order of the North Star; and Commander of the First Class of the Order of Danebrog.
1874.	,, ..	M. A. N. KIŒR, Director of the Statistical Bureau of Norway; Associate of the Statistical Society of Paris.
1860.	,,	THOMAS MICHELL, Esq., C.B., H.B.M. Consul-General in Norway.
1860.	**Stockholm**....	M. FREDRIK THEODOR BERG, late Director of the Royal Statistical Bureau of Sweden; Doctor of Medicine; Doctor (Honorary) of Philosophy and of Jurisprudence; Member of the Royal Academy of Sciences of Stockholm, and of the Royal Academy of Agriculture; Corresponding Member of the Central Statistical Commission of Brussels, of the Statistical Society of Paris; Member of the Medical Societies of Stockholm, Christiania, Copenhagen, and Helsingfors, &c.; Commander of the Royal Orders of the Polar Star and of Wasa, &c.

Turkey.

1877.	**Constantinople.**	HIS HIGHNESS AHMED VEFYK PACHA, Senator, &c.

AMERICA.

Dominion of Canada.

Year of Election.		
1876.	**Ottawa**.....	JOHN LANGTON, Esq., M.A., late Auditor-General.

United States.

1873.	**Albany, N.Y.** ..	THE HON. WILLIAM BARNES, Counsellor-at-Law; Ex-Superintendent of the Insurance Department, State of New York.
1876.	**New Haven, Conn.**	FRANCIS A. WALKER, Esq., Ph.D., LL.D., President of the Massachusetts Institute of Technology; Member of the National Academy of Sciences; President of the American Statistical Association, Boston.
1870.	**Norwich, Conn.**	THE HON. DAVID A. WELLS, D.C.L., LL.D., Late Special Commissioner of Revenue of the United States; Chairman of Commission for the Revision of Taxes of the State of New York; President of the American Social Science Association; Member of the Board of Arbitration of American Railways; Corresponding Member of the Institute of France; President of the American Free Trade League; Chairman 1883 of the Department of Finance of the American Social Science Association.
1870.	**Taunton, Mass.**	THE HON. JOHN ELIOT SANFORD, Lawyer; Speaker of the House of Representatives; Insurance Commissioner; Chairman of the Board of Harbour and Land Commissioners.
1881.	**Washington** ..	JOHN S. BILLINGS, Esq., M.D., Surgeon United States Army; Member of the National Academy of Science, &c.
1877.	,,	EDWARD YOUNG, Esq., A.M., Ph.D., formerly Chief of the Bureau of Statistics, United States of America.

ASIA.

India.

1886.	**Calcutta**.....	J. E. O'CONOR, Esq., Assistant Secretary of the Statistical Branch, Department of Finance and Commerce, Government of India.

AUSTRALASIA.

New South Wales.

Year of Election.		
1876.	**Sydney**.....	EDWARD GRANT WARD, Esq., Registrar-General, and a Magistrate of the Colony of New South Wales.

New Zealand.

1876.	**Wellington**....	JAMES HECTOR, Esq., M.D., C.M.G., F.R.S., L. and E., F.G.S., &c. Director of the Geological Survey, of the Meteorological Department, and of the New Zealand Institute.

Queensland.

1877.	**Brisbane**.....	HENRY JORDAN, Esq., Member of Legislative Assembly.

Tasmania.

1876.	**Hobart**.....	EDWIN CRADOCK NOWELL, Esq., J.P., Clerk of Executive and Legislative Councils, and late Government Statistician.

Victoria.

1875.	**Melbourne**	HENRY HEYLYN HAYTER, Esq., C.M.G., Government Statist of Victoria; Officer of Public Instruction (France); Honorary Member of the Statistical and Social Inquiry Society of Ireland, of the Statistical Association of Tokio, and of the Royal Society of Tasmania; Honorary Corresponding Member of the Statistical Society of Manchester, of the Geographical Society of Bremen, and of the Royal Society of South Australia; Fellow and Honorary Corresponding Secretary for Victoria of the Royal Colonial Institute; Associate of the Statistical Society of Paris.
1858.	,, ...	WILLIAM HENRY ARCHER, Esq., K.S.G., F.I.A., F.L.S., &c., Barrister-at-Law.

Note.—The Executive Committee request that any inaccuracies in the foregoing List of Honorary Members may be pointed out, and that all changes of address may be notified to the Secretary, so that delay in forwarding communications and the publications of the Society may be avoided.

INDEX TO RULES.

RULE

1. The Objects of the Society.
2. Society to consist of Fellows and Honorary Members.
3. No. of Fellows unlimited; Hon. Members not to exceed 70.
4. Fellows—Candidates to be proposed by two or more Fellows.
5. Do. to be elected by Ballot.
6. Do. on Admission may attach F.S.S. to their Names.
7. Honorary Members, Proposed by Council; Elected by Ballot.
8. Fellows, to pay an Annual Subscription or a Composition.
9. Do. how disqualified. Written notice of withdrawal required.
10. Do. and Honorary Members, Expulsion of.
11. Trustees. Property of Society, to be vested in Three.
12. President, Council, and Officers, Number and Particulars of.
13. } Do. do. do. Election and Qualifications of.
14. }
15. Do. do. do. Extraordinary Vacancies of.
16. Committees, may be appointed by Council.
17. Meetings, Ordinary and Anniversary, when to be held.
18. Ordinary Meetings, Business of. Strangers may be introduced.
19. Anniversary Meetings, Business of.
20. Special General Meetings may be called.
21. Auditors, Appointment and Duties of.
22. President, Duties of. To have a Casting Vote.
23. Treasurer, Duties of, subject to the Council.
24. Secretaries, Duties of.
25. Vice-Presidents, Powers of.
26. Council, Duties of, in Publishing Papers and Expending Funds.
27 } Do. Powers of, to frame Regulations not inconsistent
28. } with these Rules.
29. Do. to publish a Journal of the Transactions of the Society.
30. Right of Property reserved in all Communications received.

RULES OF THE STATISTICAL SOCIETY.

Objects of the Society.

1. The Statistical Society was established to collect, arrange, digest, and publish facts illustrating the condition and prospects of society, in its material, social and moral relations. These facts are for the most part arranged in tabular forms, and in accordance with the principles of the numerical method.

The Society not only collects new materials, but condenses, arranges, and publishes those already existing, whether unpublished or published in diffuse and expensive forms, in the English or in any foreign language.

The Society likewise promotes the discussion of legislative and other public measures from the statistical point of view. These discussions form portions of the Transactions of the Society.

Constitution of the Society.

2. The Society consists of Fellows and Honorary Members, elected in the manner laid down in the following rules.

Number of Fellows and Honorary Members.

3. The number of Fellows shall be unlimited. Foreigners or British subjects of distinction residing abroad may be admitted as Honorary Members: of whom the number shall not be more than seventy at any one time.

Proposal of Fellows.

4. Every Candidate for admission as a Fellow of the Society, shall be proposed by two or more Fellows, who, shall certify from their personal knowledge of him or of his works, that he is a fit person to be admitted a Fellow of the Statistical Society. Every such certificate having been read and approved at a Meeting of the Council, shall be suspended in the meeting-room of the Society until the following Ordinary Meeting, at which the vote shall be taken upon it.

Election of Fellows.

5. In the election of Fellows, the votes shall be taken by ballot. No person shall be admitted unless at least sixteen Fellows vote, and unless he have in his favour three-fourths of the Fellows voting.

Admission of Fellows.

6. Every Fellow elect shall appear for his admission on or before the third Ordinary Meeting of the Society after his election, or within such time as shall be granted by the Council.

The manner of admission shall be thus:—

Immediately after the reading of the minutes, the Fellow elect, having first paid his subscription for the current year or his composition, shall sign the obligation contained in the Fellowship-book, to the effect following:—

"We, who have underwritten our "names, do hereby undertake, each for "himself, that we will endeavour to "further the good of the Statistical "Society for improving Statistical "Knowledge, and the ends for which "the same has been founded; that "we will be present at the Meet-"ings of the Society as often as con-"veniently we can, and that we will "keep and fulfil the Rules and Orders "of this Society: provided that when-"soever any one of us shall make known, "by writing under his hand, to the "President for the time being, that he "desires to withdraw from the Society, "he shall be free thenceforward from "this obligation."

Whereon the President, taking him by the hand, shall say,—"*By the autho-"rity and in the name of the Statis-"tical Society I do admit you a "Fellow thereof.*"

Upon their admission Fellows shall have the right of attaching to their names the letters F.S.S.

Admission of Honorary Members.

7. There shall be Two Meetings in the year, on such days as shall be hereafter fixed by the Council, at which *Honorary Members* may be elected.

No Honorary Member can be recommended for election but by the Council. Any Member of the Council may propose a Foreigner or British subject of distinction residing abroad at any Meeting of the Council, delivering at the same time a written statement of the qualifications, offices held by, and published works of the person proposed; and ten days' notice at least shall be given to every Member of the Council, of the day on which the Council will vote by ballot on the question whether they will recommend the person proposed. No such recommendation to the Society shall be adopted unless at least three-fourths of the votes are in favour thereof.

Notice of the recommendation shall be given from the chair at the Meeting of the Society next preceding that at which the vote shall be taken thereon. No person shall be elected an Honorary Member unless sixteen Fellows vote and three-fourths of the Fellows voting be in his favour.

The Council shall have power to elect as Honorary Members, the Presidents for the time being of the Statistical Societies of Dublin, Manchester, and Paris, and the President of any other Statistical Society at home or abroad.

Payments by Fellows.

8. Every Fellow of the Society shall pay a yearly subscription of *Two Guineas*, or may at any time compound for his future yearly payments by paying at once the sum of Twenty Guineas.*

Defaulters.— Withdrawal of Fellows.

9. All yearly payments are due in advance on the 1st of January, and if any Fellow of the Society have not paid his subscription before the 1st of July, he shall be applied to in writing by the Secretaries, and if the same be not paid before the 1st of January of the second year, a written application shall again be made by the Secretaries, and the Fellow in arrear shall cease to receive the Society's publications, and shall not be entitled to any of the privileges of the Society until such arrears are paid; and if the subscription be not discharged before the 1st of February of the second year, the name of the Fellow thus in arrear shall be exhibited as a defaulter on a card suspended in the meeting-rooms; and if, at the next Anniversary Meeting, the amount still remain unpaid, the defaulter shall be announced to be no longer a Fellow of the Society, the reason for the same being at the same time assigned. No Fellow of the Society can withdraw his name from the Society's books, unless all arrears be paid; and no resignation will be deemed valid unless a written notice thereof be communicated to the Secretaries. No Fellow shall be entitled to vote at any Meeting of the Society until he shall have paid his subscription for the current year.

Expulsion of Fellows.

10. If any Fellow of the Society, or any Honorary Member, shall so demean himself that it would be for the dishonour of the Society that he longer continue to be a Fellow or Member thereof, the Council shall take the matter into consideration; and if the majority of the Members of the Council present at some Meeting (of which and of the matter in hand such Fellow or Member, and every Member of the Council, shall have due notice) shall decide by ballot to recommend that such Fellow or Member be expelled from the Society, the President shall at the next Ordinary Meeting announce to the Society the recommendation of the Council, and at the following Meeting the question shall be decided by ballot, and if at least three-fourths of the number voting are in favour of the expulsion, the President shall forthwith cancel the name in the Fellowship-book, and shall say,—

"By the authority and in the name "of the Statistical Society, I do declare "that A. B. (naming him) is no longer "a Fellow (or Honorary Member) "thereof."

* Cheques should be made payable to "The Statistical Society," and crossed "Messrs. Drummond and Co."

And such Fellow or Honorary Member, shall thereupon cease to be of the Society.

Trustees.

11. The property of the Society shall be vested in *three Trustees*, chosen by the Fellows. The Trustees are eligible to any other offices in the Society.

President, Council, and Officers.

12. The Council shall, besides the Honorary Vice-Presidents and the Trustees, consist of thirty-one Members, of whom one shall be the President, and four be nominated Vice-Presidents. The Council shall be elected as hereafter provided. Any five of the Council shall be a quorum. From the Council shall be chosen a *Treasurer, three Secretaries,* and a *Foreign Secretary*, who may be one of the Secretaries. Six Fellows, at least, who were not of the Council of the previous year, shall be annually elected.

Election of President and Officers.

13. The President shall be chosen yearly by the Fellows. The same person shall not be eligible more than two years in succession.

The former Presidents who are continuing Fellows of the Society shall be Honorary Vice-Presidents; four Vice-Presidents shall be yearly chosen from the Council by the President.

Any Honorary Vice-President may take part in the deliberations of the Council on expressing a wish to that effect: and when attending the Meetings of the Council, shall exercise all the rights and powers of a Member of the Council.

The Treasurer and Secretaries shall be chosen yearly by the Fellows from the Council.

Election of Council.

14. The Council shall, previously to the Anniversary Meeting, nominate, by ballot, the *Fellows whom they recommend* to be the next President and Council of the Society. They shall also recommend for election a Treasurer and Secretaries (in accordance with Rule 12). Notice shall be sent to every Fellow whose residence is known to be within the limits of the metropolitan post, at least a fortnight before the Anniversary Meeting, of the names of Fellows recommended by the Council.

Extraordinary Vacancies.

15. On any *extraordinary vacancy* of the Office of the President, or other Officer of the Society, or in the Council, the Secretaries shall summon the Council with as little delay as possible, and a majority of the Council, thereupon meeting in their usual place, shall, by ballot, and by a majority of those present, choose a new President, or other Officer of the Society, or Member of the Council, to be so until the next Anniversary Meeting.

Committees.

16. The Council shall have power to appoint *Committees of Fellows* and also an Executive Committee of their own body. The Committees shall report their proceedings to the Council. No report shall be communicated to the Society which is not approved by the Council.

Meetings Ordinary and Anniversary.

17. The *Ordinary Meetings* of the Society shall be monthly, or oftener, during the Session, which shall be from the 1st of November to the 1st of July, both inclusive, on such days and at such hours as the Council shall declare. The *Anniversary Meeting* shall be held on such day in June of each year as shall be appointed by the Council for the time being.

Business of Ordinary Meetings.

18. The business of the *Ordinary Meetings* shall be to admit Fellows, to read and hear reports, letters, and papers on subjects interesting to the Society. Nothing relating to the rules or management of the Society shall be discussed at the Ordinary Meetings, except that the *Auditors' Report* shall be received at the Ordinary Meeting in *February*, and that the Minutes of the Anniversary Meeting, and of every Special General Meeting, shall be confirmed at the next Ordinary Meeting after the day of such Anniversary or Special General Meeting. *Strangers* may be introduced to the Ordinary

Meetings, by any Fellow, with the leave of the President, Vice-President, or other Fellow presiding at the Meeting.

Business of Anniversary Meeting.

19. The business of the *Anniversary Meeting* shall be to elect the Officers of the Society, and to discuss questions on its rules and management. No Fellows or Honorary Members shall be proposed or admitted at the Anniversary Meeting. No Fellow shall moot any question on the rules or management of the Society at the Anniversary Meeting, unless after *three weeks' notice* thereof given to the Council, but amendments to any motion may be brought forward without notice, so that they relate to the same subject of motion. The Council shall give fourteen days' notice to every Fellow of all questions of which such notice shall have been given to them.

Special General Meetings.

20. The Council may, at any time, call a *Special General Meeting* of the Society when it appears to them necessary. Any ten Fellows may require a Special General Meeting to be called, by notice in writing signed by them, delivered to one of the Secretaries at an Ordinary Meeting, specifying the questions to be moved. The Council shall, within one week of such notice, appoint a day for such Special General Meeting, and shall give one week's notice of every Special General Meeting, and of the questions to be moved, to every Fellow within the limits of the metropolitan post, whose residence is known. No business shall be brought forward at any Special General Meeting other than that specified in the notice for the same.

Auditors.

21. At the *first Ordinary Meeting* of each year, the Fellows shall choose two *Auditors*, not of the Council, who, with one of the Council, chosen by the Council, shall audit the Treasurer's accounts, and report thereon to the Society, which report shall be presented at the Ordinary Meeting in February. The Auditors shall be empowered to examine into the particulars of all expenditure of the funds of the Society where they shall see occasion, and may report their opinion upon any part of it.

Duties of the President.

22. The *President* shall preside at all Meetings of the Society, Council, and Committees, which he shall attend, and in case of an equality of votes, shall have a second or casting vote. He shall sign all diplomas of admission of Honorary Members. He shall admit and expel Fellows and Honorary Members, according to the rules of the Society.

Duties of the Treasurer.

23. The *Treasurer* shall receive all moneys due to, and pay all moneys due from, the Society, and shall keep an account of his receipts and payments. No sum exceeding Ten Pounds shall be paid but by order of the Council, excepting always any lawful demand for rates or taxes. He shall invest the moneys of the Society in such manner as the Council shall from time to time direct.

Duties of the Secretaries.

24. The *Secretaries* shall, under the control of the Council, conduct the correspondence of the Society; they or one of them shall attend all Meetings of the Society and Council, and shall have the care of duly recording the Minutes of the Proceedings. They shall issue the requisite notices, and read such papers to the Society as the Council may direct.

Powers of the Vice-Presidents.

25. A *Vice-President*, whether Honorary or nominated, in the chair, shall act with the power of the President, in presiding and voting at any Meeting of the Society or Council, and in admitting Fellows; but no Vice-President shall be empowered to sign diplomas of admission of Honorary Members, or to expel Fellows. In the absence of the President and Vice-Presidents, any Fellow of the Society may be called upon, by the Fellows then present, to preside at an Ordinary Meeting. The Fellow so presiding may admit Fellows, but shall not be empowered to act otherwise as President, or Vice-President.

Powers of the Council.

26. The Council shall have control over the papers and funds of the Society, and may, as they shall see fit, direct the publication of papers and the expenditure of the funds, so, that they shall not at any time contract engagements on the part of the Society beyond the amount of the balance that would be at that time in the Treasurer's hands, if all pre-existing debts and liabilities had been satisfied.

27. The Council shall be empowered at any time to frame *Regulations* not inconsistent with these rules, which shall be, and remain in force until the next Anniversary Meeting at which they shall be either affirmed or annulled; but no Council shall have power to renew Regulations which have once been disapproved at an Anniversary Meeting.

28. No Dividend, Gift, Division, of Bonus in money shall be made by the Society, unto or between any of the Fellows or Members, except as hereinafter provided.

29. The Council shall publish a Journal of the Transactions of the Society, and such other Statistical Publications, as they may determine upon, and may from time to time pay such sums to Editors and their assistants, whether Fellows of the Society or not, as may be deemed advisable.

30. All communications to the Society are the property of the Society, unless the Council allow the right of property to be specially reserved by the Contributors.

REGULATIONS OF THE LIBRARY.

1. The Library is open daily from 10 a.m. till 5 p.m., except on Saturdays, when it closes at 2 p.m.; and it is entirely closed during the month of September.

2. Members of the Society are permitted to take out Books on making personal application, or by letter addressed to the Librarian.

3. Members are not to have more than two works at a time, nor keep any books longer than a month.

4. Scientific Journals and Periodicals are not circulated until the volumes are completed and bound.

5. Cyclopædias and works of reference are not circulated.

6. Any Member damaging a book, either replaces the work, or pays a fine equivalent to its value.

7. Books taken from the shelves for reference, are *not* to be replaced, but must be laid on the Library table.

8. The Secretary shall report to the Council any infringement of these regulations.

DONORS TO THE LIBRARY.

DURING THE YEAR 1886.

Foreign Countries.

Argentine Republic.
Austria and Hungary
Belgium.
Brazil.
Bulgaria.
Chili.
China.
Denmark.
Egypt.
France.
Guatemala.
Germany.
Saxony.
Prussia.
Italy.
Japan.
Mexico.
Netherlands.
Roumania.
Russia.
Servia.
Spain.
Switzerland.
Sweden and Norway.

The United States—
Federal Government.
Massachusetts.
Michigan.
New York.
Rhode Island.
Wisconsin.
Uruguay.

Indian, Colonial, and other Possessions.

Bengal.
Canada. *Dominion of.*
Cape of Good Hope.
Ceylon.
India (British).
Jamaica.
Manitoba.
Mauritius.
New South Wales.
„ Zealand.
Queensland.
South Australia.
Tasmania.
Trinidad.
Victoria.

Public Departments.

The Admiralty, Medical Depart^{t}.
„ Agricultural Department.
„ Army Medical Department.
„ Board of Trade.
„ British Museum.
„ Colonial Office.
„ Convict Prisons, Directors of.
„ Crown Agents for the Colonies.
„ Customs, H.M.
„ Factories, Inspectors of.
„ Fire Brigade, Metropolitan.
„ Friendly Societies, Registrar of.
The Home Office.
„ India Office.
„ Inland Revenue.
„ Local Government Board.
„ Metropolitan Board of Works.
„ Mint, The Royal.
„ Police, London Metropolitan.
„ Registrar-General of England.
„ „ „ Ireland.
„ „ „ Scotland.
„ Warden of Standards.
„ Woods, Forests, &c.

Abbott, Joseph, Esq.
Accountants' Gazette, The Editor of.
Actuaries, The Institute of.
Agriculture, Central Chamber of.
Allen, Messrs. W. H., and Co., London.
American—
Academy of Arts and Sciences, Boston.
Geographical Society of N. York.
Philosophical Soc. of Philadelphia.
Anderson, Richard, Esq., London.

During the Year 1886—*Contd.*

Argentine Legation, London.
Arts, Society of, London.
Asiatic Society of Bengal.
„ „ Japan.
Association of Chambers of Commerce of the United Kingdom.
Astor Library, New York U.S.A.
Athenæum, The Editor of.
Atkinson, Edward, Esq., Boston.
Austrian Statistical Commission.
„ Ministry of Commerce.

Bailey, W. F., Esq., Dublin.
Baker, Dr. H. B., Lansing, U.S.A.
Balfour, Dr. T. Graham, F.R.S.
Bankers' Institute, London.
„ Magazine, London, The Editor of.
„ „ New York, The Editor of.
Beaujon, A., Esq., France.
Begg, Alexander, Esq., Montreal.
Beggs, Thomas, Esq., London.
Bela, Dr. Foldes, Budapest.
Belgian Administration of General Statistics.
„ Administration of Mines.
Belgium, Academy, Royal.
Bell, J. T., Esq., Glasgow.
Berg, Dr. F. T., Stockholm.
Berlin, Statistical Bureau of.
Bernard, W. L., Esq., London.
Bertillon, Dr. J., Paris.
Bevan, G. P., Esq.
Bevis, G. W., Esq.
Beyer, Professor E.
Biggs, T. H., Esq.
Billings, Dr. J. S., Washington.
Birt, W., Esq., London.
Boccardo, Signor G., Genoa.
Bodio, Professor Luigi, Rome.
Bohemian Administration of Lands and Forests.
Bolles, Albert S., Esq., New York.
Böhmert, Dr. V., Dresden.
Booth, Charles, Esq., London.
Bordeaux, Académie Nationale des Sciences de.
Bourinot, J. G., Esq., Ottawa.
Bourne, Stephen, Esq., London.
Bourne, William, Esq., Liverpool.
Boutcher, Mortimer, & Co., Messrs.
Brachelli, Dr. H. F., Vienna.
Bradstreet's Journal, The Editor of.
Bramley-Moore, Mr.
Breslau, Statistical Bureau of.
British Association, The.
„ Iron Trade Association.
Brookes and Green, Messrs.
Brussels, The Bureau of Hygiene.
Budapest, Statistical Bureau.
Buenos Ayres, Statistical Bureau of.
„ The Editor of "La Prensa."
Building Societies, &c., Gazette.
Bulgarian Statistical Bureau.
Burchard, H. C., Esq., Washington.
Burdett, H. C., Esq., London.
Burjorji, Ardesheer, London.

Caillard, A., Esq., Alexandria.
Canada, Royal Society of.
Canadian Department of Agriculture.
Cannon, H. W., Esq., Washington.
Cape of Good Hope, Colonial Sec.
„ The Education Office.
Chemical Society, The, London.
Chilian Consul-General, London.
Chinese Imperial Maritime Customs.
City Quarterly Magazine, The Editor of.
Civil Engineers, Institution of.
Clare, W. Esq.
Clark, H. J., Esq., Trinidad.
Clarke, Ernest, Esq., London.
Cobden Club, the Committee of.
Colombia College, New York.

During the Year 1886—*Continued.*

Commercial and Financial Chronicle, The Editor of, New York.
Commercial World, The Editor of.
Coni, Dr. E. R., Buenos Ayres.
Coode, Sir John, K.C.M.G.
Cowen, Charles, Esq., Cape of Good Hope.
Craddock, J., Esq., Stafford.
Craigie, Major P. G., London.

Daniell, Clarmont, Esq., London.
Danvers, F. C., Esq., London.
Dawson, Messrs., Bros., Montreal.
Day, David T., Esq., Washington.
Day, S., Esq., London.
Denmark, Statistical Bureau of.
„ Political Economy Society of.
Dublin, Chief Com. of Police.
Durant and Co., Messrs., London.

East India Association, London.
Eaton and Sons, Messrs. H. W.
Economist, The Editor of.
Economista Español, The Editor of.
Economista, Florence, The Editor of.
Économiste Français, The Editor of.
Edinburgh, The City Chamberlain.
„ Royal Society of.
Ellis, G. H., Esq., Boston.
Ellison, Thomas, Esq., Liverpool.
Ellison and Co., Messrs., Liverpool.
Erben, Joseph, Esq., Prague.
Evangelical Alliance, London.

Fairlamb, W., Esq., York.
Ferguson, A. M., Esq., Ceylon.
Ferraris, C. F., Esq., Padova.
Finance Chronicle, The Editor of.
Fischer, Gustav, Esq., Jena.
Fock, G. Esq., Leipzig.
Ford, Worthington, C., Esq., Washington.
Fossick, W. G., Esq., London.
Foville, M. A. de, Paris.
Frankfort, Geographical and Statistical Society of.
„ Statistical Bureau of.
Franklin Institute, Philadelphia.
Fream, Professor W., B.Sc., Lond.
Freemantle, Hon. C. W., C.B.
French Ministry of Agriculture.
„ „ Commerce.
„ „ Education, &c.
„ „ Justice.
„ „ Public Works.
„ École Libre des Sciences Politiques.
Friendly Societies, Chief Registrar of.

Garnett, F. B., Esq., C.B., Inland Revenue Department.
Geneva, Administrative Council of.
German Imperial Statistical Bureau.
„ Railway Association.
Gionale degli Economisti, The Editor of—, Bologna.
Glasgow, The Mitchell Library.
„ Philosophical Society of.
Goehlert, Dr. Vincenz, Graz.
Gooch and Cousens, Messrs.
Guatemala, Statistical Bureau of.
Gunn, A., Esq., London
Guthrie, Edwin, Esq., Manchester.
Guy, Mrs., London.
Guyot, M. Yves, Paris.

Haggard, Frederick T., Esq.
Halton, W. F., Esq., Cairo.
Hamburg Chamber of Commerce.
„ Statistical Bureau of.
Harrison and Sons, Messrs., London.
Hart, Sir Robt., K.C.M.G., Peking.
Hayter, H. H., Esq., C.M.G., Melbourne.
Hazell, Watson, and Viney, Limited, Messrs., London.

During the Year 1886—*Contd.*

Hector, Dr. James, C.M.G., F.R.S., Wellington, New Zealand.
Hibbert, H. F., Esq., Manchester.
Hickson, Joseph, Esq., J.P., Montreal.
Hill, Dr. A., Birmingham.
Hoar, Hon. G. F., Washington.
Howard Association, London.
Hungarian Statistical Bureau.

Illustrated Science Monthly, The Editor of.
Imperial Federation League, London.
Inàma-Sternegg, Dr. K. T., Vienna.
Index Society, London.
India Rubber and Gutta Percha Journal, The Editor of.
Indian Department of Finance.
„ Government, Calcutta.
Industries, The Editor of.
Insurance and Providence, The Editor of.
Insurance Gazette, The Editor of.
„ Post, The Editor of.
„ Record, The Editor of.
International Statistical Institute.
Investors' Monthly Manual, The.
Iron and Coal Trades' Review, The.
Italian Bureau of General Statistics.
„ Department of Public Debt.
„ Director General of Agriculture.
„ Health Society, The Royal.

Jamaica, The Registrar-General of.
Janssens, Dr. E., Brussels.
Japanese Legation, London.
Jeans, J. S., Esq., London.
Jenkins, F. L., Esq., Brooklyn, U.S.A.
Johnston, Rev. J., Upper Norwood.
Jones, William, Esq.

Kay, Robert, Esq., Adelaide.
Keleti, Dr. C., Vienna.
Kelly, Charles, Esq., M.D., F.R.C.P.
Keltie, J. S., Esq., London.
Kennedy, C. M., Esq., C.B.
Kitts, Eustace J., Esq., Bombay.
Kőrösi, Joseph, Esq., Budapest.
Kummer, Dr. J., Bern.

Lee, Sir Joseph C., Manchester.
Levasseur, M. Emile, Paris.
Levi, Prof. Leone, LL.D.
Liberty and Property Defence League, The.
Littledale, Ragg, and Co., Messrs.
Liverpool, Lit. and Phil. Society.
„ Free Public Library.
Local Taxation Committee.
London Chamber of Commerce.
„ Hospital, The Secretary.
Ludlow, J. M., Esq., London.
Lukas, Franz C., Esq., Vienna.

Machinery Market, Editor of.
Macleod, H. D., Esq., London.
Macmillan and Co., Messrs., London.
Macpherson, Dr. H. M., London.
Madison State Board of Health, Wisconsin.
Magáz y Jayme, Exmo Señor D. José, Madrid.
Maimonides Library, New York.
Manchester—
Literary and Philosophical Soc.
Public Free Library.
Statistical Society of.
Manitoba Department of Agriculture.
Massachusetts, Board of Health, Lunacy, and Charity.
„ Bureau of Statistics of Labour.
Master Builders, National Association of.
Mauritius Almanac, &c., Editor of.
„ H. E. The Governor of.
„ The Colonial Secretary.

During the Year 1886—*Contd.*

Mechanical Engineers, Institution of
Medical Officer of Health, London.
Meitzer, Professor August, Berlin.
Mexican Statistical Bureau.
Michigan State Board of Health.
Middlesex Hospital, London.
Mitchell Library, Glasgow.
Money, The Editor of, London.
Montreal Medical Officer of Health.
Moore, Harold E., Esq., London.
Moore, W. F., Esq., Preston.
Moss and Co., Messrs. R. J., Alexandria.
Moxon, Thomas, Esq., Manchester.

Nacian, M. J. J., Bucharest.
Naples, The Municipality of.
Nature, The Editor of, London.
Netherlands—
Department of the Interior.
Director-General of Post Office Savings Banks.
Legation, London.
Statistical Institute of.
Statistical Society of.
New South Wales, Agent-General for.
„ „ Registrar-General of.
New York State Library.
New Zealand, Registrar-General of.
Norwegian Central Statistical Bureau.
„ Royal University.

O'Conor, J. E., Esq., Calcutta.
Ogle, Dr. W., London.
Oldham, John, Esq., Montevideo.

Page and Gwyther, Messrs.
Paris, Statistical Bureau of.
„ Statistical Society of.
Parry, Francis, Esq., London.
Peace Society, London.
Peck, Charles F., Esq., New York.
Peñafiel, Dr. A., Mexico.
Pesch, A. J., Esq., Rome.
Petersen, Aleksis, Esq., Copenhagen.
Pixley and Abell, Messrs., London.
Platt, James, Esq., London.
Policy-Holder Journal, The Editor of the.
Political Science Quarterly, The Editor of.
Powell, Messrs. T. J. and T.
Prague, Statistical Bureau of.
Praschkauer, M., Esq., London.
Prussia, Royal Statistical Bureau of.

Quain, Richard, M.D., F.R.S., London.
Queensland, Registrar-General of.

Rabino, J., Esq., Alexandria.
Rae, John, Esq., London.
Rauchberg, Dr. H., Vienna.
Rawson, Sir R. W., K.C.M.G., C.B.
Reade, Edward Anderdon, Esq., C.B.
Reims, Bureau of Hygiene.
Review, The Editor of.
Révue Bibliographique Universelle, The Editor of, Paris.
Révue Géographique Internationale, The Editor of, Paris.
Reyes, Rafael, Esq., San Salvador.
Rhodes, John G., Esq., London.
Ronald and Sons, Messrs., Liverpool.
Roper, William, Esq., Lancaster.
Roth, H. Ling, Esq., Leeds.
Roumanian Central Statistical Bureau.
Royal Agricultural Society.
„ Asiatic Society, London.
„ „ Bombay Branch.
„ „ China „
„ College of Surgeons.
„ Colonial Institute.
„ Geographical Society.
„ Horticultural „
„ Institution of Great Britain.
„ Irish Academy.
„ Med. and Chirurgical Society.

During the Year 1886—*Contd.*

Royal National Life Boat Inst.
„ Society, London.
„ United Service Institution.
Russell, Dr. J. B., Glasgow.
Russian Department of Agriculture.
„ „ Customs.
„ Imperial Geographical Society.

St. Bartholomew's Hospital, London.
Sanitary Record, The Editor of.
Sauerbeck, A., Esq., London.
Saxony, Royal Statistical Bureau.
Shaw, Capt. E. M., C.B., London.
Simner, W. L., Esq., London.
Smith, Arthur M., Esq., London.
Smith, Dr. George, C.I.E.
Smithsonian Institution, U.S.A.
Snow, Dr. E. M., Providence, R.I., U.S.A.
Social Science Association.
Soetbeer, Ad., Esq., Berlin.
South Australia, Chief Secretary of.
„ Royal Society of.
Sowray, J. R., Esq., London.
Spanish Board of Customs.
„ Director-General of Public Works.
„ Department of Health, Madrid.
„ Geographical Society of Madrid.
Statist, The Editor of.
Statistical and Social Inquiry Society of Ireland.
Stein, M. A. von, St. Petersburg.
Stock, Elliott, Esq., London.
Stout, The Hon. Sir Robert, K.C.M.G., New Zealand.
Surgeon-General U. States Army.
Surveyors' Institution, The
Swedish Central Statistical Bureau.
Switzerland, The Federal Statistical Bureau of.
„ The Statistical Society of.

Tait, P. M., Esq., Eastbourne.
Tasmania, Government Statistician of.
„ Royal Society of.
Tchernigov Government Provincial Board.
Textile Manufacturer, Editor of.
Thompson, Messrs. W. J. and H.
Thubron, R., Esq.
Tokio, Japan, Statistical Society of.
Trübner and Co., Messrs., London.
Trustees of the British Museum.

United States Bureau of Education.
„ Commissioner of Labour.
„ Comptroller of the Currency.
„ Department of Agriculture.
„ Department of State.
„ Treasury Department.
University College, London.
Urmson, Elliott, and Co., Messrs.
Uruguay, The Consul-General for.

Verschuer, Baron W. A. Van.
Vessélovsky, A., Esq., St. Petersburg.
Victoria, Department of Mines.
„ Royal Society of.
„ „ Commission of.
Vincent, Edgar, Esq., Cairo.
Vine, Sir J. R. Somers, London.

Walras, M. Leon, France.
Wandsworth Board of Works.
Watson, William, Esq., London.
Wigan, Free Public Library.
Wilson, Robert, Esq.
Wirth, Max, Esq., Vienna.
Wolff, Captain M. P., Brighton.
Wool and Textile Fabrics, The Editor of.
Woolston and Beeton, Messrs.
Wright, Hon. C. D., Boston, Mass.

THOSE persons who are inclined to benefit the Society by legacies are recommended to adopt the following

FORM OF BEQUEST.

I give and bequeath unto the Statistical Society, London, the sum of £ , such legacy to be paid out of such part of my personal estate, not specifically bequeathed, as the law permits to be appropriated by will to such a purpose.

NOTE A.—All gifts by will to the Society of land, or of money secured on, or directed to be secured on, or to arise from the sale of, or directed to be laid out in the purchase of, land, will be void. Gifts may be made by will of stock in the public funds, shares or debentures of railway or other joint-stock companies, or money to be paid out of the testator's pure personal estate, or of personal chattels.

NOTE B.—Bequests may be made either for the general purposes of the Society, or to the Society's "Building Fund," which has been recently established.

London School of Hygiene & Tropical Medicine
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